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A collection of materials developed by teachers is an instructional aid to assist the teacher in providing enrichment activities for the more capable learner in the sixth grade. The teachers' section contains: suggestions for using pupil materials, characteristics of the more able student, a checklist for identifying the more able students, a chart of activities for the capable learner, and a list of materials available from the Curriculum Department for resource purposes. The pupil's section consists of sample copies of pupil materials such as puzzles, word games, scrambled sentences, matching exercides, and fill-in-the-blank quizzes. The pupil materials can be grouped under the following categories: arithmetic, language, music, reading, science, and social studies.

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THE MORE CAPABLE LEARNER

MCL

GRADE 6

ED001249

Fresno City Unified School District
Fresno, California

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FOR THE
MORE CAPABLE LEARNER
Grade 6

This collection of materials developed by teachers is an instructional aid to assist the teacher in providing enrichment activities for the more capable learner.

Developed by
More Capable Learner Committee

William Hansen, Chairman

Al Pepper

Ernest Melella

Lawrence Spaulding

Pat Caporale

Seth Atamian

Marjorie Ragsdale, Consultant

M. C. L. Binder

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- Suggestions for Using Pupil Materials
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- Samples of Materials

II. Pupils' Section

- Sample copies of pupil materials
  1. Arithmetic
  2. Language
  3. Music
  4. Reading
  5. Science
  6. Social Studies
- Answer sheets

SUGGESTIONS FOR USING PUPIL MATERIALS

1. Make the materials accessible to all pupils.

2. Stimulate interest by displaying activity sheets in boxes in front of a suitable bulletin board.

3. Display several sheets on various topics at one time. Change often.

4. Explain use of materials to all pupils. It is important that students know what materials are available, how these materials are to be used and when they may use them.

5. Allow pupils to correct their own work. Teachers may check over the work if they so desire.

6. Provide some type of record keeping. Card files or check sheets work well.

7. Set aside some time each week for students to report their accomplishments to the class. A regular check-up time is important to the success of this project.

8. Student worksheets should be mounted on tagboard or construction paper to make them last longer. Transparencies may be clipped to the worksheets to protect them.

9. All materials should be turned in to the building principal at the close of the school term and checked out to teachers in the fall.

CHARACTERISTICS OF THE MORE ABLE STUDENT*

High Academic Achievement (1, 3-5, 7-10, 12, 13)

The more able student shows as much unevenness in subject matter abilities as do other children, but his overall grade point average is usually high and is the best single predictor of college success. He requires less detailed and fewer repeated instructions, often anticipating them. He works readily with symbols such as words and numbers, in place of direct experience and the actual objects.

Advanced Vocabulary and Reading Level (1, 3-5, 7-10, 12, 13)

The more able student has a large vocabulary which he uses easily and accurately. He retains what he has heard or read without much rote or drill. He can read books that are one to two years in advance of the rest of the class. He usually reads at an early age.

Expressive Fine Arts Talent (1, 4, 5, 7-10, 12, 13)

The more able student's wide range of interests stems from his vivid imagination. He is able to solve problems in aesthetic fields and can visualize actions and things from descriptions. He frequently creates original stories, plays, poetry, tunes, and sketches. He can use materials, words, or ideas in new ways.

Wholesome Personal-Social Adjustment (1, 4, 5, 7-10, 12, 13)

The more able student adjusts easily to new associates and situations. He is alert, keenly observant, and responds quickly. He possesses a keen sense of humor and incorporates suggestions from others into his own thinking and actions. His companions are often one or two years older but they recognize his superior ability in planning, organizing, and promoting. He also displays evidence of emotional stability in ordinary behavior.

Early Physical Competence (1, 3, 5, 8-10, 12, 13)

The more able student is characterized by his early physical development. He has a tendency to be taller, heavier, and has fewer physical defects. Not only does he enjoy outdoor games preferred by average children, but tends to excel in these games. He usually enjoys superior health and, as a result, has fewer absences from school due to illness. He also possesses especially good eye-hand coordination.

Superior Intellectual Ability (1, 4, 8-10, 12)

The more able student exhibits superior ability in reasoning, generalizing, thinking logically, and comprehension. He is able to perform highly difficult mental tasks and to learn more rapidly and more easily than most children. This child also has a longer concentration span and is keenly aware of the processes of his environment.

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* The More Able Student by Ernest O. Buhler and Eugene N. Guirl, Vocational Guidance Quarterly Vol. 8, No. 4

Characteristics of the More Able Student (continued)

Effective Independent Work (1, 7-10, 12, 13)

The more able student displays his competence for effective independent work by criticizing himself and modifying his behavior accordingly. He possesses superior insight into problems, is not easily influenced, and is less prone to change his mind once an opinion is formed. His effectiveness is also displayed by applying learning from one situation to more difficult situations.

Persistent Curiosity (1, 3, 7, 9, 10, 12)

The more able student displays a deep seated interest in some subject or field. In an attempt to gratify this insatiable curiosity he may display a dislike for rote memory and busy work. He also enjoys using encyclopedias, dictionaries, maps, globes, and other references.

Strong Creative and Inventive Power (1, 4, 5, 8, 10, 12)

The more able student possesses high-powered intellectual curiosity, imagination, and creativity. He has unusual power to see new structures and processes and to express his vision in speaking, writing, art, music, or some other form. His work has freshness, vitality, and uniqueness. An individual may create new ideas and substances or he may invent and build new mechanical devices. He sometimes runs counter to tradition and is continually questioning the status quo. He may do the unexpected.

Special Scientific Ability (1, 4, 5, 8, 10, 12)

The more able student with scientific talent will use the scientific method of thinking. He will employ scientific research methods and will grasp scientific concepts in short periods of time. He will display a curiosity of the natural world. He is not easily discouraged by failure or experiments or projects and will seek causes and reasons for things. He will spend much time on special projects of his own such as making collections, constructing radios, and making electronic computers.

High Energy Level (1, 7, 9, 10, 12)

The more able student displays a high level of energy. He keeps active by undertaking and completing task after task. He participates in various extra-curricular activities, holding leadership roles in many, and frequently concentrates on long range, unattainable and poorly defined goals.

Demonstrated Leadership Ability (4, 5, 10, 12)

The more able student displays an ability to help a group reach its goals. He often will improve human relationships within a group and will achieve prominence by individual effort. He enters into activities with enthusiasm and is able to influence others to work towards desirable or undesirable goals. He can take charge of the group.

Well-Developed Mechanical Skills (4, 5, 10)

The more able student who possesses mechanical ability may be identified by unusual manipulative skills and spatial ability. He perceives a visual pattern complete with details, similarities, and differences. He excels on craft projects and is interested in mechanical gadgets, devices, and machines. He comprehends mechanical problems and puzzles and likes to draw plans and sketches of mechanical objects.

Department of Guidance and Testing

CHECKLIST FOR IDENTIFYING THE MORE ABLE STUDENT*

Name______________________________ School______________________________

Age: Years______________ Months________________ I.Q.________________

Place a check mark (✓) on the scale at a point where you think the pupil under consideration rates in the characteristics named. Please make your estimate in relation to all other pupils in this age group.

High academic achievement	LOW	2	3	4	HIGH
Advanced vocabulary and reading level					
Expressive fine arts talent					
Wholesome personal-social adjustment					
Early physical competence					
Superior intellectual ability					
Effective work independently					
Persistent curiosity					
Strong creative and inventive power					
Special scientific ability					
High energy level					
Demonstrated leadership abilities					
Well-developed mechanical skills					

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* Taken from The More Able Student
by E. O. Buhler and E. N. Guirl,
Vocational Guidance Quarterly,
Vol. 8, No. 4

M.C.L. ACTIVITIES CHART*

MUSIC-RHYTHMS	ARTS AND CRAFTS	
Study the foreign words used in musical notation. Read life stories of musicians. Dramatize stories portrayed in music. Listen to an opera. Report to class, using story of the opera. Write songs or poems. Set them to your own music. Organize a verse choir. Read poetry or prose aloud with a musical accompaniment.	Make charts with pictures to illustrate rules of grammar. Mount picture. List parts of speech found in it. Give it a title. Write a story and use some of the nouns, verbs, adjectives identified. Describe how certain pictures make you feel--in poetry or prose. Read stories of artists and master works. Interview local artists, sculptors, etc., by phone. Ask for a field trip to museum, art center, photography studio, advertising agency. Make book covers or folders for clippings, etc.	LANGUAGE ARTS
Make an illustration of the relationship of time notations in music to fractions. Use a metronome to compare speed, to show time variations of timetable, to establish a rhythmic pattern, to create a simple dance. Show that syncopation is a kind of arithmetic problem. Figure the cost to the school of an orchestra, band, chorus; include uniforms, instruments, music, etc.	Create patterns and designs with geometric figures. Make snowflake designs. Make scale drawings. Study some phase of architecture--blue-prints, landscape design, stresses and strains of building supports, areas, floor space ratio to window area. Figure amount of materials needed for class use of finger paint, clay mixes, etc. Study formulae used in mixing color chemicals for ceramics.	ARITHMETIC
Demonstrate different types of music from other parts of the world or other areas of this country. Make a collection of different types of songs, such as work songs, home songs, patriotic, love, and blues songs. Create a folk song based on an old folk tale. Show how the dances of the world affect our modern dances. Make a collection of rhythms used for folk dancing. Learn to do folk dances of the areas studied, giving attention to authentic costumes, etc.	Show how climate and environment affect the arts and crafts of the people. Design and decorate rooms in a home. Make a model of a home. Make tiles using designs of pioneers. Draw a family tree; put in as much geneology as you can. Make a book-plate for the family library. Collect pictures of the areas studied. Display them around the room and building. Weave, spin, dye, work in clay, and do other pioneer handicraft. Draw pictures, murals to illustrate plans of social studies. Make maps (use many different media).	SOCIAL STUDIES

*Adapted from the Portland Plan For More Capable Learners

MORE CAPABLE LEARNER ACTIVITIES LISTED IN OVERLAPPING SUBJECT AREAS

SOCIAL STUDIES	SCIENCE	
Write letters for specific information about news stories. Interview resource persons in person or by phone. Make written or oral reports on things that interest you. Listen to conversational Spanish, French, German, etc., records. Make a vocabulary chart for the class of foreign words or phrases used daily. Write stories or plays. Keep news-clipping file by subject. Collect clippings and pictures of subject you are interested in. Lead discussion groups.	Keep science diaries--"Birds I Have Identified," etc. Build specific vocabulary from prefixes and suffixes and word beginnings. Make reports of field trips to other classes. Interview resource people in person or by phone. Write radio scripts, stories, poems, TV scripts, etc. Relate the scientific method to the development of good study habits. Read biographies of great scientists, doctors, nurses, public health pioneers. Keep health-diary, record changes in weight, height, girth, etc. Arrange phone conference with a scientist you know. Follow one problem or curiosity to an answer each day.	LANGUAGE ARTS
Study foreign exchange. Study different methods used in Europe. Compute costs of trips from schedules. Using map, figure mileage for imaginary class trips. Use scale drawings. Construct models of homes or areas studied. Compute altitudes using surveyors' instruments. Make a graphic illustration of time zones across the nation.	Study system of measures. Learn how standards are set and maintained. Find uses for geometric figures in science. Learn to use computers. Visit office where IBM machines are used. Keep graphic record of rainfall, weather, barometric readings, wind velocity. Make problems about building a house. Learn to compute board feet. Study simple geometry and learn to compute the height of objects. Measure and record shadows--A.M., noon, P.M.	ARITHMETIC
Extension Make use of reference books, diaries, biographies, resource persons, and fugitive materials for extensive study of chosen area. Keep bibliographies of each area studied: Using filing cards and keep a permanent file for own use or for the use of other pupils. Study local, state and county history. Make scrapbook--homes, communites, shelter, transportation, food, etc. Make collections--pictures, clothing, materials, building materials, foods. Interview adults for historical information. Mount current events--locate on map.	Study different bird routes and migratory phenomenon. Show how each large area and each state has its own particular conservation problems. Study insurance policies which provide protection against storms, etc. Study insect, pest and plant disease controls and show how the different states are protecting their crops by enforcing strict border regulations. Read about the water divining rod and other superstitions. Study lightning tamers. Study rain makers in dry areas.	SOCIAL STUDIES

LANGUAGE ARTS	ARITHMETIC	
Extension Write plays, stories, poetry, diaries. Make spelling lists--homonyms, synonyms, antonyms. Study dictionary for derivation of words. Make Story Starter file. Study advertisements. Write pros and cons Make bibliographies. Do research. Write or read biographies to class Who's Who? Report orally. Read to class. Develop class newspaper. Make scrapbook of readings--records. Plan special day programs. Dramatize stories. Direct plays. Make dictionaries. Use thesaurus.	Read about history of numbers. Add words to reading and speaking vocabulary. Make oral and/or written reports on special math research. Operate school store. Practice being a salesman. Interview local storekeepers. Write reports, advertisements, etc Write evaluation of experiences.	LANGUAGE ARTS
Interview persons in industry and business to show need for good foundation in understanding of number facts. Write a play using numbers as characters. Dramatize lives of great mathematicians. Keep an arithmetic vocabulary list.	Extension Study other bases for numbers, 8, 10, etc. Keep temperature record. Work out algebraic formulae for various problems. Create number games to help the slow learner. Make fraction picture-charts. Keep a percentage-rating chart of batting averages of national ball players, class, or school team. Demonstrate new methods of learning the arithmetic facts by using such devices as Stern's number board, etc. Practice oral number games. Make budget. Study number systems.	ARITHMETIC
Make charts, lists, or write about our dependence upon other countries for daily activities and supplies. Begin with breakfast; bananas, cocoa, etc.--include the things we use at school such as the rubber in erasers, medical supplies, etc. Have dramatic play of historical events. Make oral reports on history, culture, ways of life. Make booklets--mottoes of states, lives of famous people, birthdays of famous people. Spell names of holidays. Write what each letter might stand for. Group pantomime situation for class to write about. Pretend to be inanimate object--fog, wind, leaf--write how they might feel.	Read maps; draw to scale. Show sectional (cutaway) view of the continent, Isthmus of Panama and Panama Canal, or of a volcano, or Grand Canyon. Show comparisons of altitudes, ages, etc. Make a time line showing where you fit in the history of the country studied. Use it to make comparative studies of events in different countries. Plan trips--distance and time. Compare speeds of transportation--land, water, air. Have dramatic play with money situation. Plan and play number games.	SOCIAL STUDIES

MUSIC-RHYTHMS	ARTS AND CRAFTS	
Make a study of great scientists to see if any of them were also good musicians. Do some research on the value of musical therapy. Study supersitions about music and point out their fallacies. Demonstrate the differences among the various instruments of the orchestra explaining the variations in tone. Use glass tumblers to create music. Explain. Study bell ringing and participate in a group of bell ringers. Explain to your classmates the scientific principle involved.	Analyze the rainbow and the spectrum. Show the difference between the colors in light and the colors in a paint box. Explain color-blindness and why certain colors are used for traffic signs and highway markings. Draw safety-campaign posters and pictures. Collect driftwood. Identify the kind of wood and use it in an artistic flower arrangement. Study photography. Develop and enlarge your own pictures and exhibit them. Draw the different types of clouds. Illustrate your science study, using a variety of media, i.e., pastel chalk birds, water color trees, India ink wash flowers.	SCIENCE
Extension Plan and produce a musical assembly program. Write original compositions for a simple instrument. Plan a listening program for the class, choosing music from the classics. Organize small ensembles--choral or instrumental. Attend local civic musicales, recitals, operas, ballet performances, etc. Record on a tape a musicale. Help plan and produce a dance program. Work out exercises and stretches for warming-up session in dance group.	Make rhythm instruments like gourds, tambourines, clappers, cymbals, marimbas, flutes, whistles, drums, banjo, castanets, maracas. Draw impressions of musical numbers. Illustrate scenes from great musical productions, operas, etc. Produce background music for art exhibit or tea.	MUSIC & RHYTHMS
Draw designs or pictures to musical accompaniment. Illustrate songs for cover of sheet music. Draw, paint, construct scenes for operetta. Design costumes for play or dance.	Extension Draw rainbows at top of paper. Write paragraph about each color. Cut pictures depicting feelings--happiness, fear. Study equipment, other media, techniques. Attain more skill in art know-how. Visit art museum and art department of the library, ceramic studio, etc. See films, exhibits, etc. Paint for relaxation. Make gift cards, Christmas cards, woven gifts, etc. Make puppets. Make ink blot designs. Study art and artists. Do various kinds of printing--make posters. Create designs.	ARTS & CRAFTS

SOCIAL STUDIES	SCIENCE	
Make a survey of conservation needs in the community. Follow through. Show how science has contributed to better living--home appliances, medicines, travel, recreation, communications, etc. Study the new methods of communication and how they are affecting the lives of the people of the world. Show how such things as the transistors are changing our way of life.	Extension Experiment--Demonstrate experiments for other classes. Make extensive use of equipment like microscopes, microscope projector, telescopes, kits on soil, weather, chemistry, machines, etc., plastic models of parts of the body. Plant seedling trees, seeds, bulbs. Make an aquarium, a terrarium, glass-side box for root study. Maintain science corner in the room or in the school hall--exhibit. Have a science fair and exhibit projects. Work on inventions. Collect rocks, leaves, nests, insects. (must identify) Care for pets and plants. Find current events--re: science. Construct tree ring time line.	SCIENCE
Listen to, play, sing music of the country studied. Read about the country's musicians and composers. Learn and teach the dances of the country. Create dances using some of the characteristic dance steps of the country. Know and tell the stories behind the folk songs, using such books for reference as Spaeth's "A History of Popular Music," etc. Write an operetta based on folklore. Know and tell the story of some of the early pipe organs, reed organs, and pianos brought around the Horn or across the plains.	Create dances based on movements of machinery. Use a drum for rhythms. Create music typifying science concepts. Create a dance about nature or some scientific phenomenon. Listen to recordings of bird calls and animal sounds. Write music using bird calls as a basis.	MUSIC & RHYTHMS
Participate in local art and crafts festival. Draw murals, pictures, slides, etc. depicting life and surroundings of the area studied. Weave, using native designs. Experiment with different media to produce unusual textures. Produce a resource kit of your area to exchange with another part of the country. Draw pictures of your community to go in an exchange scrapbook for Jr. Red Cross. (These could be photographs you took.)	Construct desert terrarium, aquarium, etc. Make weather-measuring instruments and chart daily weather report. Make a papier-mâché volcano or relief map. Draw designs using science areas for subjects such as fish, ferns, animals. Sketch from nature--still life. Make nature blueprints, sun prints. Make papier-mâché animals and figures depicting various ages of man.	ARTS & CRAFTS

LANGUAGE ARTS	ARITHMETIC	
Study lives of great scientists and report studies in written or oral form. Make graphs, charts, scrapbooks, and vocabulary lists on different fields of science studied. Conduct panel discussions, hold debates, forums, etc. Interview home-town scientists. Write for current information from large companies like DuPont, Abbott Laboratories, Dairy Council, Science Research Associates, etc. Read and report articles found in Science News Letter and other scientific magazines. List state birds and flowers. Make booklets on science principles--water cycle, clouds, growing things.	Prepare illustrations of comparisons of liquid measures, dry measures, solids, etc. Use chart of caloric values of foods, figure food needs of classmates, parents, pets, etc. Figure the densities of different kinds of woods. Learn to use a slide rule. Experiment with the diet of pet rats. Accurately measure food intake, weight. Chart growth or loss of weight. Note other changes. Keep weather chart recording daily readings of temperature, barometric pressure, precipitation, etc. Work out problems of pulleys and other simple machines.	SCIENCE
Write stories to musical accompaniment. The stories may describe the musical feeling, or the music may be used solely to set the climate. Create the musical background for a puppet play or for another type of play. Write music for operetta or to accompany verse-speaking choir. Make up a musical travelogue. Choose records for background music and sound-effects for a play. Create dance to accompany verse-speaking choir.	Construct musical instruments which require arithmetic computation such as xylophone, marimba and other percussion instruments. Make a graph or chart showing the length of vibrations for each tone. Show the extremes of high and low tones which the human ear can hear. Compare with animals such as the dog and rat. Study some graphs which have been made of the human voice and other sounds.	MUSIC & RHYTHMS
Illustrate stories, poems, songs, book covers, etc. Make bookmarks, book plates, book covers, dust covers for books, notebooks, etc. Study early books, illuminated lettering. Construct stage properties, paint scenery for a play. Design costumes for play. Make puppets to fit original story or play. Make scenery. Arrange bulletin boards. Make classbook. Use customs--cut off captions or conversation. Write own versions. Write directions of an art lesson for another class.	Construct charts, graphs, tables, games, flash cards, and other graphic pictures for rapid learning of number facts. Make an abacus. Make a decorative chart to record class data such as class officers, books read, batting averages, etc.	ARTS & CRAFTS

LIST OF M.C.L. MATERIALS

(Materials available from the Curriculum Department
on a limited basis. Order by code number.)

Arithmetic

	Code No.	
1. Elementary Geometry (Rhodehamel)	In6-S-C-En-01	Student copies available
2. Indirect Measurement	In6-S-C-En-01b	Student copies available
3. Math Enrichment (Morris)	In6-S-C-En-02	Student copies available
4. Suggested Exercises (Lay)	In6-S-C-En-52	Student copies available
5. Problem Solving (Powers)	In6-T-C-En-07	Student copies available
6. Famous Men in Science and Mathematics	In-S-C-En-27	Extra copies available

Science

1. Airplanes	In6-S-C-En-25	Extra copies available
2. Rockets and Guided Missiles	In6-S-C-En-16	Extra copies available
3. Birds	In6-S-C-En-04	Extra copies available
4. The Solar System	In6-S-C-En-18	Extra copies available
5. Chemistry	In6-S-C-En-44	Extra copies available
6. Vertebrates and Invertebrates	In6-S-C-En-46	Extra copies available
7. Microscope Study	In6-S-C-En-05	Extra copies available

Miscellaneous

1. Extra Credit Projects	In6-T-C-En-08	Extra copies available
2. Pupil Interest Survey	In-S-C-En-40	Extra copies available

Fresno City Unified School District

- - -

Name ______________________________ Date ____________________

FAMOUS MEN IN SCIENCE AND MATHEMATICS

(Unit for Independent Study in Arithmetic)

I. What are some of the contributions each of these men made to the world?

- A. Newton
- B. Archimedes
- C. Galileo
- D. Eratosthenes
- E. Kepler
- F. Copernicus
- G. Euclid
- H. Leonardo

As you read keep these two questions in mind.

1. What did men want to know?
2. What means had they of discovering it?

II. Projects (one or more)

A. Construct models and plan demonstrations of some of the early discoveries of these (or other) famous mathematicians.

B. Make a time line of famous mathematicians and scientists.

C. In a series of pictures or models, develop an invention from its earliest beginnings to today.

D. On a map of the world (or bulletin board) show where each of the following originated:

1. Telescope
2. Sun dial
3. Reflecting telescope
4. Chronometer
5. Slide rule
6. Sun calendar
7. Table of eclipses
8. Compass
9. Lenses
10. Paper
11. Thermometer
12. Microscope
13. Lightning conductor
14. Steam engine
15. Electric light
16. Wheels
17. Astrolabe
18. Abacus
19. Archimedes' screw
20. Any others you choose

E. Make a word list encountered in your reading and list definitions and origin of each.

F. Record on tape the biography of one of these men.

G. Work out a chart on famous mathematicians using the following headings:

NAME YEARS LIVED REASON FOR FAME

H. Write a biography on one of these famous mathematicians and tell why he became famous.

FAMOUS MEN IN SCIENCE AND MATHEMATICS

Resource Material

These and other good books are available at Fresno City and Fresno County School Buildings.

AUTHOR	BOOK	PUBLISHER	DATE
Brindze	Story of Our Calendar	Vanguard	1949
Fisher	The Man Made World	Follett	1934
Hahn	Leonardo Da Vinci	Hale	1958
Lancelot	The Wonderful World of Mathematics	Hogben	1955
Levinger	Galileo	Messner	1958
Meyer	World Book of Great Inventions	World	1956
Moore	Isaac Newton	Putnam	1958
Ripley	Leonardo Da Vinci	Oxford	1952
Rosen	Galileo and The Magic Numbers	Little Brown	1958
Sootin	Isaac Newton	Messner	1955
Taylor	An Illustrated History of Science	Praeger	1955
Thomas	Leonardo Da Vinci	Criterion	1957

Note: For audio-visual aids, refer to your local audio-visual catalogue.

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AIRPLANES

Guide Questions

Name ______________________________ Date ____________________

Accompany reports with drawings or pictures, if possible.

1. Show the main parts of a plane and tell what each does.
2. Number and/or name of plane.
3. Nickname of plane(if it has one).
4. Manufacturer of plane (company who made it).
5. Use of plane (fighter, bomber, air-sea rescue, etc.).
6. When it was first made.
7. Type of engine.
8. Weight - empty.
9. Weight - loaded.
10. Maximum speed.
11. Cruising speed.
12. Maximum diving speed.
13. Initial climb rate.
14. Service ceiling (highest height at which the plane can perform well).
15. Maximum range (distance it can fly with full loads of fuel, without refueling).
16. Size
    a. Wing span b. Length c. Height d. Wing area
17. By whom it is used.

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ROCKETS AND GUIDED MISSILES

Guide Questions

Name ______________________ Date ______________

1. Name
2. Type (surface to surface, air to air, surface to air, satellite launcher, etc.) and use
3. From where it is launched
4. Its target
5. Length or height
6. Weight
7. Diameter
8. Altitude
9. Range
10. Speed (Velocity)
11. Number of stages, if any
12. Type of engine or fuel used
13. Thrust (How many pounds of push does it have)
14. When and where it was first launched
15. How many times it has been launched
16. How many successful launchings it has had (If possible, tell when these launchings were)
17. Armed service that uses it
18. Any other interesting facts

ROCKETS AND GUIDED MISSILES

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Name ______________________________ Science

Date ______________________________ Student Lesson Sheets

Directions: This outline is suggestive only. You may follow the outline completely, or you may wish to do only part of it. Try to develop each part as thoroughly as possible. If you go into this project with the correct attitude, you will find many new and interesting facts about the world and your place in it.

Reference: World Book Encyclopedia

BIRDS

Birds as a group are the most attractive of creatures. Their beautiful feathers and graceful flight have delighted people for hundreds of years. Artists have painted pictures of birds and sculptors have carved them in wood and stone. Everyone loves their beauty and songs, their grace of body, and their soaring. But the world has only within recent years come to realize that birds need protection. They may no longer be ruthlessly killed in great number for sport, food, or ornament. Since birds help man in many ways, man has at last realized that he must help his "feathered friends."

I. Characteristics of Birds

   A. The covering of feathers
   B. The power of flight
   C. The body framework
   D. Bird songs

II. Habits of Birds

   A. Bird travelers
   B. Nests
   C. Home life and courtship
   D. Food

III. The Protection of Birds

   A. By law

      1. Game reservations
      2. Game laws -- state, federal, and international

   B. Audubon societies
   C. Bird Day observances
   D. Bird protection

Birds -- (continued)

IV. Bird Friends of the Farmer

  A. Eaters of weed seeds

    1. North American goldfinch
    2. Bunting
    3. Grosbeak
    4. Sparrow

  B. Eaters of insects and rodents

    1. Blackbird
    2. Bluebird
    3. Brown thrasher
    4. Buzzard
    5. Crow
    6. Flicker
    7. Flycatcher
    8. Hawk
    9. Owl
    10. Robin
    11. Secretary bird
    12. Wren

V. Birds that Sing

  A. Cardinal bird
  B. Cuckoo
  C. Lark
  D. Mocking bird
  E. Nightingale

VI. Birds that Hunt and Fish

  A. Hunting

    1. Falcon
    2. Goshawk

  B. Fishing

    1. Cormorant
    2. Pelican

VII. Birds of Beautiful Plumage

  A. Bird of Paradise
  B. Crane
  C. Flamingo
  D. Heron
  E. Lammergeier
  F. Lory
  G. Lyre bird

Birds -- (continued)

- H. Motmot
- I. Ostrich
- J. Peacock
- K. Pheasant
- L. Quetzal
- M. Tragopan

VIII. Bird Pets

- A. North American goldfinch
- B. Baltimore oriole
- C. Canary
- D. Cockatoo
- E. Parrot

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OUR SOLAR SYSTEM

Name ______________________________ Date __________________

1. Name all nine of the planets in our solar system.

____

____

____

____

____

____

____

____

____

2. Our solar system is just a minute part of what galaxy? __________________

3. All the planets revolve around what heavenly body? __________________

WHO AM I?

1. I am the largest planet in our solar system. __________________
2. I am the smallest planet in our solar system. __________________
3. I am the farthest planet from the sun. __________________
4. I am the closest planet to the sun. __________________
5. I have rings around me that are made of meteoric particles and dust. __________________
6. Scientists say that of all the planets, I would have life most like that of the earth, if I had life at all. __________________
7. I am a planet near the earth. No one knows much about my surface because I am surrounded by clouds. I am named after the Greek goddess of love and beauty. I am sometimes called the morning or evening star. __________________
8. I am the fourth largest planet. I am named after the god of the sea. __________________
9. As far as we know I am the only planet that has life on it. I am the third planet from the sun. My atmosphere is almost all oxygen and nitrogen. __________________

10. I am the seventh planet from the sun. I am named after the oldest of the gods. I helped discover Neptune because I was being pulled out of my orbit by Neptune.

11. I am sometimes called the Red Planet.

12. I have a mysterious red spot on me that seems to come and go.

13. Scientists think that I have channels of water on me. Some people called these channels canals and said that men living on me had made them. This is not likely since the channels are very long. I also have ice caps at my poles and seem to have seasons.

14. I am the earth's nearest neighbor.

15. I am very hot. I am a star. The planets revolve around me.

BONUS

1. I have 12 moons.

2. I keep one side to the sun all the time. One side of me is very hot and one side of me is very cold.

3. My day is the same length of time as my year. Both are 88 days long.

4. What do we call the heavenly bodies that revolve around planets? (Other than moon)

5. There are some small heavenly particles that travel around the sun in an orbit like that of the planets. What are these bodies called?

6. Name one planet that has no moons.

7. Name a planet that has one moon.

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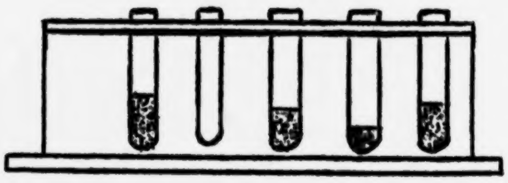
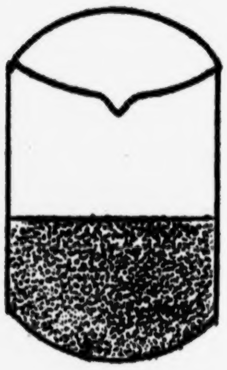


CHEMISTRY



By
Seth Atamian

NAME____

Reference: Schneider, Science For Today and Tomorrow - Grade 6
Pages 95-103

1. What is the job of a chemist?

2. What is a molecule?

3. Explain each of the following:

solid: ____________________

liquid: ____________________

gas: ____________________

4. Write a short paragraph about atoms.

5. Why was the discovery of atoms important?

6. List 12 elements:

1. ____________
2. ____________
3. ____________
4. ____________
5. ____________
6. ____________
7. ____________
8. ____________
9. ____________
10. ____________
11. ____________
12. ____________

7. Define the word "element."

Reference: Schneider, Science For Today and Tomorrow
Pages 104-118

COMPOUNDS

1. What is a compound?

2. Give 2 examples where elements are combined into compounds.
   1.
   2.

3. What will happen when you place moistened steel wool in a dish?

4. How does a chemist write Water?
   What does the H stand for?
   What does the O stand for?
   What does the 2 stand for?

5. What is a symbol?

6. What is a formula?

7. What is the formula for Hydrogen Peroxide?

8. How many atoms of hydrogen are there in each molecule?

9. How many atoms of oxygen?

10. What happens when $H_2 O_2$ is left open?

11. What is the formula for starch?

12. What happens when you chew starch?

    Write the formula.

Reference: Schneider, Science For Today and Tomorrow
Pages 104-118

13. Give one example where a compound is taken apart. Explain in detail.

14. Iron Ore is a compound of ____________________ and ____________________.

Pages 118-128

1. What is a group test?

2. How do you test for an acid?

What experiment can you use?

3. How do you test for Alkalies or bases?

4. What experiment can you use to explain question three?

5. What are neutral substances?

Reference: Schneider, Science For Today and Tomorrow
Pages 118-128

6. Why do chemists test the soil?

7. How do you test for starch?

Give an experiment to show above.

8. How do you test for different materials in textiles? Give examples for each material.

Pages 129-135

1. What is chromatography?

Give an experiment.

Reference: Schneider, Science For Today and Tomorrow
Pages129-135

2. What is a spectroscope?

3. What is a prism?

4. Describe each of the following elements as they would look through a spectroscope.

   Sodium:

   Boron:

   Sunlight:

5. Did you enjoy the study of Chemistry? Why?

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EXTRA CREDIT PROJECTS

These projects have been designed for those faster-working students who wish to do more to increase their knowledge of the dictionary and the encyclopedia. Answers to these questions will not provide an education in themselves, but may provide beginnings for the study of an area of interest to you. It will add to your present knowledge of interesting information and facts. Answers to many of these questions are as entertaining as they are informative. Grades will be given for any of the projects which are accurately completed. (The letter in parenthesis is a clue to the correct volume.)

NAME: ______________________________

Date: ______________________

Project 1 General Knowledge

1. How did the U. S. flag get the name "Old Glory"? (F)
2. What war gave birth to our national anthem? (W)
3. What kind of bird sews leaves together to make its nest? (B)
4. What is the largest fresh-water lake in the world? (L)
5. Where is the oldest church in America? (P)
6. What famous composer's life was saved by a coat button? (H)
7. How high are the towers of the Golden Gate bridge? (G)
8. Of the 24 hours in a day, how long does your heart rest? (H)
9. What are the two largest islands in the world? (I)

Project 2 Transportation and Communication

1. Who built the first workable steamboat? (S)
2. How many people were lost in the "Titanic" disaster? (T)
3. What is stored in a camel's hump? (C)
4. How fast can experts travel on snowshoes? (S)
5. What is a velocipede? (V)
6. Between what two points did the Pony Express service operate? (P)

Project 3 Communication

1. What people are believed to have invented the alphabet? (A)
2. What country makes the highest average number of telephone calls per person? (C)
3. What is a hydrophone? (H)
4. How does an encyclopedia differ from a dictionary? (E)
5. What is a heliograph? (H)
6. What famous silent film marks the founding of the modern motion picture? (M)
7. How does a radio broadcast reach the listener? (R)
8. Who printed the first Bible? (G)

Project 4 Money

1. How much U. S. paper money is worn out each day? (M)
2. How do Canadian Legal Tender and United States legal Tender resemble each other? (L)
3. What are the three chief kinds of money? (M)
4. What kind of money come in the colors of white, purple, and black? (W)
5. How is the value of money measured? (M)
6. Where was the earliest-known coin made? (M)
7. What is the penalty for those who counterfeit money in the United States? (C)
8. Whose portrait is on a U. S. $100,000 bill? (M)
9. Whose portrait is on a U. S. $1,000 bill? (M)

Project 5 Science in General

1. What ancient Greek scientist boasted that he could move the earth if he had a place on which to stand? (A)
2. How fast does light travel per second? (L)
3. What is one of the toughest, strongest, and most elastic substances known? (N)
4. What is the name of the science that deals with the study of fossils? (P)
5. What is the speed of sound? (S)
6. What is the weight of the moon? (M)
7. What is the weight of the earth? (E)
8. How many planets are there in our solar system? (S)
9. What is the largest planet? (P)

Project 6 Astronomy

1. Next to Venus, what is the brightest planet? (J)
2. What planet is closest to the sun? (M)
3. What planet has belts of different color across it? (J)
4. How many visible meteors do scientists estimate enter the earth's atmosphere each day? (M)
5. What is the earth's nearest neightbor in Space? (M)
6. How many moons does Mars have? (M)
7. How long does it take light from the sun to reach the earth? (S)
8. Why is the sky blue? (S)
9. What is the difference between a planet and a star? Is our sun a star? (P)

Project 7 Physics and Inventions

1. Why is it hard to walk on ice? (F)
2. Why does a match burn when you strike it? (F)
3. What makes sound? (S)
4. Which will freeze faster, water or gasoline? (F)
5. What is the difference between an invention and a discovery? (I)
6. What was Alexander Graham Bell's original occupation and how did it lead to the invention of the telephone? (B)

Project 8

General Knowledge

1. What is the Surinam toad's unusual method of raising its young? (S)
2. Upon what basic process does all life in the world depend? (B)
3. Which weighs more, the brain of a male or a female human being? (B)
4. What star is more than a million times as big as the sun? (S)
5. Does sound travel faster through water or through air? (S)
6. What language was spoken by Jesus Christ? (A)
7. Who has been called the "George Washington of South America". (B)
8. What was the greatest flood in the history of the United States? (F)
9. How much gold is estimated to be contained in the water of the world's oceans? (O)
10. If it were possible for a man to stand on the sun, how much would he weigh there? (S)
11. Who were the first men to reach the top of Mount Everest? (M)
12. What is a "loadstone" and how did it get its name? (L)
13. Can you see steam? (S)
14. Where is the deepest place in the oceans of the world? (O)
15. What is the largest living bird? (O)
16. What is the tallest animal? (G)
17. How old is a camel before it is full grown? (C)
18. What is the hardest substance known? (D)
19. What is the average length of life of the hippopotamus? (H)
20. Who invented basketball? (B)
21. Where does the moon get its light? (M)
22. What is Canada's largest city? (M)
23. What is man's most valuable sea food? (O)
24. In the United States, how many zeroes does an "octillion" have? (O)
25. Why does clear ocean water look blue? (O)
26. What part of the earth's surface is covered by water? (O)
27. Who owns the largest flag of the United States? (F)
28. Why does February usually have only 28 days? (F)
29. How much honey does a worker bee collect in its entire lifetime? (B)
30. What is the longest river in the United States? (M)

Project 9

Past and Present

1. How long was the voyage across the Atlantic made by the Mayflower? (M)
2. What Central American Indian tribe built a great civilization that included advanced writing, astronomy, arithmetic, art and architecture? (M)
3. What famous explorer was executed on the false charge of treason? (B)
4. What was Henry Hudson trying to find when he explored Hudson's Bay, Hudson Strait, and the Hudson River? (H)

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6-23-61
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Fresno City Unified School District

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Name____________________

Date____________________

School____________Grade____

Teacher____________________

PUPIL INTEREST SURVEY

1. What are your favorite subjects in school? Number these subjects 1, 2, 3, etc. to show the order in which you would choose them.

_____Reading	_____Handwriting	_____Language
_____Music	_____Arithmetic	_____Spelling
_____Art	_____Science	_____Spanish
_____Games	_____Social Studies	_____Other special subjects

2. Do you have your own library card?______How often do you use the public library? Circle the answer:

Never Once-in-a-while Every two weeks Every week

What is the best book you have ever read?____________________

____

3. Circle the parts of the paper that you like to read:

News	Sports	Comics	Theater, Radio and Television
Weather	Tides	Ads	
Editorials	Social	Special features	

4. What magazines do you like to read?____________________

____

5. What comic books do you enjoy?____________________

____

6. What kind of radio programs do you like best?____________________

____

7. What type of television programs or movies do you prefer?____________________

____

8. Circle any places you would like to visit.

Ferry
Airport
Beach
Ball game
Fish cannery
A circus
Art gallery
Planetarium
Star of India
Old Spanish Lighthouse
Serra Museum
Tijuana
One of the dams
A broadcasting station (radio or T.V.)
Starlight Opera
Disneyland
Natural History Museum
Museum of Man
Scripps Institute
Palomar
Zoo
Symphony concert
A national park
Knott's Berry Farm

9. List any foreign countries you have visited (which you can remember).

____

____

10. Circle any organizations to which you belong. Check any to which you would like to belong:

Boy or Girl Scouts
Cub Scouts
Brownies
Campfire Girls
Blue Birds
Gray Y
Class officer
Safeties
Host and Hostess
Junior Traffic Patrol
Student Council
Games Teacher
Office monitors
Sunday School
Church choir
School orchestra
School Glee Club
Nurse's helper
Y.M.C.A. or Y.W.C.A.
Private club

11. List any lessons you take in addition to your regular school work:

____

____

12. What do you usually do after school? ______________________________

____

13. What things do you do with your family on Saturdays and Sundays?____________

14. What chores do you do regularly at home?____________

15. Do you have an allowance?______What do you buy with your money?____________

16. Do you ever earn money?________How?____________

17. Do you have any pets?________What kind?____________

18. Do you have a hobby?________What is it?____________

19. What would you like to do when you are grown?____________

20. In each line below you have three choices. Circle the one activity you would prefer doing:

a.	Plant a garden	make up a song	listen to radio music
b.	Play checkers	play an instrument	read about scientists
c.	Sing in a chorus	copy a poem	write to a child in another country
d.	Paint a picture	visit an art gallery	go to a pet show
e.	Play with a few friends in the yard	make a puppet	play a team game after school
f.	Visit a museum	go to the zoo	collect something
g.	Go to church	read Bible stories	give or make something for the Junior Red Cross
h.	Act in a play	watch a play	write a play
i.	Design stage scenery	invent something	do a jigsaw puzzle
j.	Write a story	go to the County Fair	read a good book
k.	Go camping or horseback riding	go to a ball game	watch television
l.	Make any scientific model	go fishing	go to the library

m.	Do square dancing	go swimming	watch a ball game
n.	Make up a poem	do craft work	go to a concert or movie
o.	Do carpentry	make a dress	do cooking
p.	Be president of your class	win a race	have a poem published
q.	Take a ride in the family car	clean or beautify the house	take care of your pet
r.	Read stories to little children	have a friend over to play	listen to older people talking
s.	Give a party	play checkers, dominoes, or cards	go for a walk alone or with your dog

* If you were given three wishes only, what would you wish for yourself, your family, the community, or the world?

CHOOSE WISELY!

a.

b.

c.

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6-13-61
In-S-C-En-40

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"LET'S LEARN MORE ABOUT THE ORCHESTRA"

Purpose: To get better knowledge of the make-up of the orchestra and to learn a deeper appreciation for a concert performance.

Things to find out

1. Names of the various instruments of the orchestra and the family to which each belongs
2. Seating plan of an orchestra
3. Names of some of the famous modern orchestras
4. Names of the best known orchestral directors of America
5. Brief history of the development of the orchestra in America

Things to do and share

1. Listen to an orchestra concert on the radio or watch it on T.V. -- prepare to tell the class about it.
2. Attend a concert in the city, bring back the program sheet to show to the class; tell what you enjoyed most.
3. Arrange for an interview with an orchestra director.
4. Draw the seating plan of an orchestra and make cut-outs to set up a miniature arrangement.
5. Choose a favorite instrument and describe in detail. Draw a sketch to illustrate.

Books:

History Sings, Kinscella

America's Musical Heritage, Burk

Picture Book of Musical Heritage, Lacy

World Book

This is an Orchestra, Posell

Making an Orchestra, Commins

From These Come Music, Stoddard

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6-14-61
In-S-C-En-41
Grade 6

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"SO YOU WANT TO KNOW MORE ABOUT STEPHEN FOSTER?"

Purpose: To find out many interesting things about the life of Stephen Foster and about the writing of his many well-known songs.

Things to find out

1. Facts about Foster's interesting childhood and young manhood
2. The story of his romance with Miss Jane McDowell
3. Names of the most famous of Stephen Foster songs
4. How he came to write some of these songs
5. What particular 'key' or 'meter' he used most often in his songs

Things to do and share

1. Begin a scrapbook on the lives and works of American Composers.
2. Check to see how many Stephen Foster songs you know, and learn several new ones.
3. Try writing a new set of words to one of Foster's songs.
4. Continue to add words to your dictionary of musical terms.
5. Prepare a report to present to the class on Stephen Foster.
6. Prepare a little program using some recordings of Foster's music.

Books:

He Heard America Sing, Purdy
Stephen Foster and His Little Dog Tray, Wheeler
Story Lives of American Composers, Bakeless
Stories of American Music, Buchanan
Americans All, Anthony
Stephen Foster Songs for Boys and Girls, Bartlett
History Sings, Kenscella
America's Musical Heritage, Burk

Records:

G34 - "Old Black Joe" - Vocal
G93 - "Old Folks at Home" - Vocal
G34 - "Swanee River" - Vocal

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6-8-61
In-S-C-En-39
Grade 6

STUDY OF PLANETS

Name ______________________ Date ______________

PLANET	TEMPERATURE	ATMOSPHERE	SURFACE	UNUSUAL FEATURES

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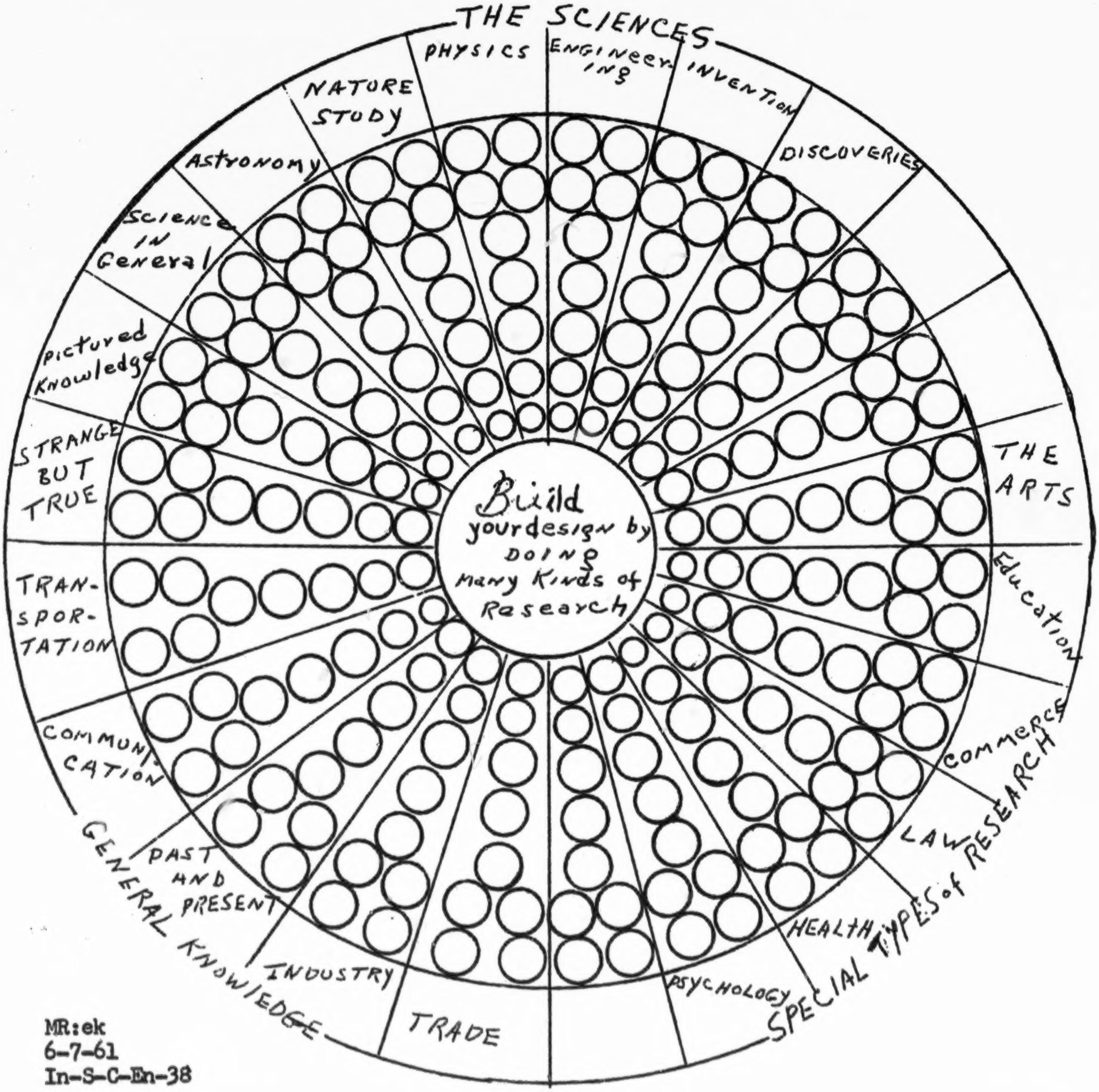
PLANET	PLACE IN RELATION TO SUN	DISTANCE FROM SUN IN MILLIONS OF MILES	SIZE IN DIAMETER	SIZE IN RELATION TO OTHER PLANETS	LENGTH OF DAY (Time taken to rotate once around its axis)	LENGTH OF YEAR (Time taken to go around sun once)	NUMBER OF MOONS
		DISTANCE FROM THE EARTH					

MR:ea
5/24/61 In-S-C-En-22

Fresno City Unified School District

MY RESEARCH DESIGN

To the researcher: -Here is an unfinished design. You may make it yours if you complete it as you do your research. You may wish to build YOUR DESIGN in this way. (1) Get the question you are going to answer. (2) Read it and write the question on the next page. (3) Write your research report. (4) Put the number of the question in as many of the small circles as it belongs. (5) Then shade in the circle with a color. Very few questions belong in more than three parts. If you answer many questions and record each one as you answer it, it will be fun to watch your pattern grow.


THE SCIENCES
PHYSICS
ENGINEERING
INVENTION
NATURE STUDY
DISCOVERIES
ASTRONOMY
SCIENCE IN GENERAL
PICTURED KNOWLEDGE
STRANGE BUT TRUE
THE ARTS
TRANSPORTATION
EDUCATION
COMMUNICATION
COMMERCE
GENERAL KNOWLEDGE
PAST AND PRESENT
LAW
SPECIAL TYPES of RESEARCH
HEALTH
INDUSTRY
PSYCHOLOGY
TRADE
Build your design by DOING many kinds of Research

MR:ek
6-7-61
In-S-C-En-38

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RESEARCH REPORT --- WHAT - WHERE - WHEN - HOW - WHY - THINK

Researcher's Name: ____________________ Date: ____________________

Card	Research Category:	Encyclopedia:	Vol.#	Page
	Question:			

Information (Answer to question) through research:

Additional information I found on this subject:

Related Subjects:

ILLUSTRATION:

NOTE: Use other side if needed - or additional paper.
Is this report complete???

MR/PS:ek
In-S-C-En-14

Fresno City Unified School District

NEWS REPORTING

____
Name of reporter

Where I found my information: ____________________
Name of media - magazine, film-strip, etc.

Title of articles: ____________________

Interesting Things I Have Learned From This Article:

1. ____________________
2. ____________________
3. ____________________

Something Special I Would Like To Tell About This Article:

____

ILLUSTRATION(S):

◇ √here I have written additional information on the reverse side!!!!

Is this report complete? ☐ yes ☐ no √one

MR:ek
6-6-61
In-S-C-En-37

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Fresno City Unified School District

T6 - A - 1

TREASURE CLUE

Find the shortest route to the treasure, then multiply all of the numbers along the way by either 6, 7, 8, or 9. Put the products in the blanks. Add all of these products and get the sum. Write your answers on another piece of paper.

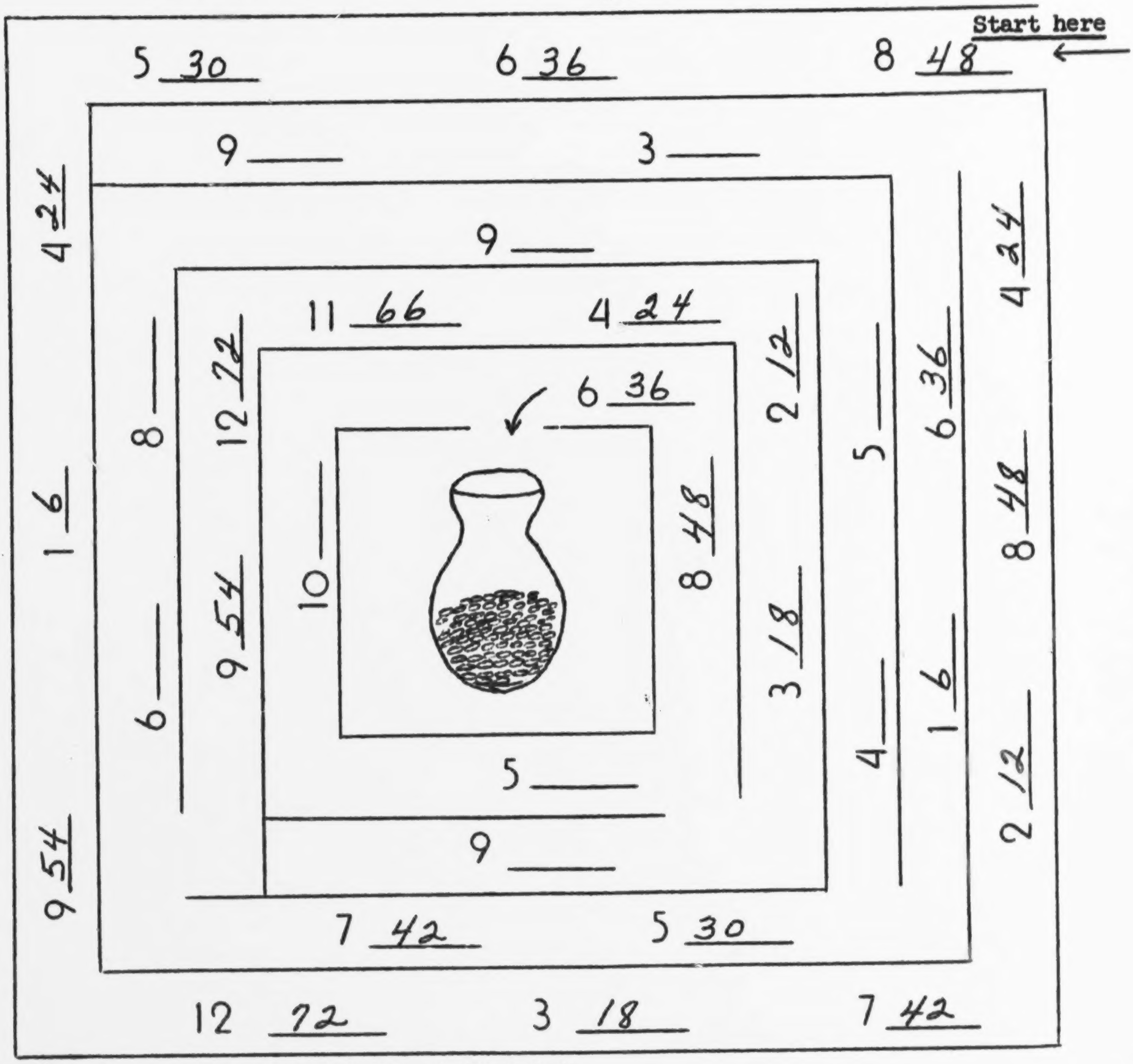
6's 858

7's 1001

8's 1144

9's 1287

Multiply by the circled number. [✓ 6] 7 8 9


Start here
5 30
6 36
8 48
9
3
9
11 66
4 24
6 36
4 24
1 6
9 54
8
6
12 72
9 54
10
4 24
8 48
2 12
5
4
6 36
1 6
2 12
3 18
8 48
5
9
7 42
5 30
12 72
3 18
7 42

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T6 - A - 2

Write your answers on another piece of paper.

MAKING EQUATIONS

An equation indicates that two things are equal. Study the illustrations to show how equations may be made from statements.

(Statements)	(Equations)
a. A number increased by 3 is 11.	$n + 3 = 11$
b. Three times a number is 27.	$3n = 27$
c. Twice a number decreased by 4 is 10.	$2x - 4 = 10$

- -

Write equations for the following. Let (n) represent the number in Problems 1-12, and let (x) represent the number in the remaining problems.

1.	Twice a number is 28.	1.	$2n = 28$
2.	Half of a number is 17.	2.	$1/2n = 17$
3.	A number decreased by 8 is 15.	3.	$n - 8 = 15$
4.	A number increased by 11 is 36.	4.	$n + 11 = 36$
5.	Three-fourths of a number is 18.	5.	$3/4n = 18$
6.	One-third of a number plus 2 is 6.	6.	$1/3n + 2 = 6$
7.	Two-thirds of a number less 3 is 9.	7.	$2/3n - 3 = 9$
8.	Six times a number is 84.	8.	$6n = 84$
9.	What number increased by 11 is 27?	9.	$n + 11 = 27$
10.	What number decreased by 8 is 34?	10.	$n - 8 = 34$
11.	Half a number plus 6 is 15.	11.	$1/2n + 6 = 15$
12.	Half a number decreased by 5 is 19.	12.	$1/2 - 5 = 19$
13.	Six is equal to a number less 2.	13.	$6 = x - 2$
14.	Sixteen is equal to a number plus 10.	14.	$16 = n + 10$
15.	Half a number plus three-fourths of the number is equal to 20.	15.	$1/2x + 3/4x = 20$
16.	Three-fourths of a number less half of the number is 9.	16.	$3/4x - 1/2x = 9$
17.	A number plus half of the number is equal to 18.	17.	$x + 1/2x = 18$
18.	Thirty is three-fourths of a number.	18.	$30 = 3/4x$
19.	A number plus twice the number is 36.	19.	$x + 2x = 36$
20.	Two more than twice a number is 10.	20.	$2x + 2 = 10$
21.	Three less than twice a number is 31.	21.	$2x - 3 = 31$
22.	A number increased by one-fourth of itself is equal to 30.	22.	$x + 1/4x = 30$

SOLVING EQUATIONS BY THE DIVISION RULE

Example: Solve the equation $3x = 36$. (Find the value of x.)
Divide both numbers by 3.

$$3x = 36$$
$$\frac{3x}{3} = \frac{36}{3}$$
$$x = 12$$

Check
Substitute the answer 12 for x in the equation.

$3 \times 12 = 36$

- -

1.	$4x = 20$	Answer 5	6.	$9x = 78$	Answer 8 2/3
2.	$5x = 100$	20	7.	$7x = 84$	12
3.	$3x = 9.6$	3.2	8.	$16 = 2x$	6
4.	$30 = 6x$	5	9.	$14 = 2n$	7
5.	$50 = 5a$	10	10.	$2.4 = 8b$	.3

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T6 - A - 3

ARITHMETIC

(Conditional Equations)

Write your answers on another piece of paper.

There will almost always be a variety of models which can be made for the solution of a given verbal problem. Thus, for the above we might also have

$187 + 213 = N$, or $N = 213 + 187$, or $N = 187 + 213$.

These are equivalent and will all guide us to the correct number of combined votes. One of the important skills which the student must develop is the rapid, accurate recognition of equivalent equations.

Equations such as $213 + 187 = N$ are called conditional equations. They become true when a certain condition or conditions are satisfied.

For each verbal problem construct a mathematical model for it in the form of a conditional equation. You need not compute the number which is determined by your equation. If you get a different result than is given in the list of answers, be sure you find out whether your equation is an equivalent one, or is incorrect.

1. Al was born in 1913. In what year was he 38 years old?
2. A coat that had been marked at $60 was bought late in the season for $45. How much was saved?
3. For lunch Hank bought a hamburger for 25 cents and a glass of milk for a dime. How much did his lunch cost?
4. The air pressure in one tire was 21 pounds per square inch. It should have been 30 pounds per square inch. How much too low was the air pressure?
5. Sales at a carnival booth were $12.20 in the afternoon, and $23.75 in the evening. If the total expenses were $7.50, what was the net income?
6. Each day Jean walks 7 blocks to school, then 5 blocks to an after-school job, and then 4 blocks home. How far does she walk in all?
7. Sam had $1.75 in his pocket. He spent 55 cents for a show. Later a friend paid back a dollar he had borrowed. What was Sam's balance then?
8. Frank wanted to save $300 during vacation. He has banked $130 during July, and $75 during the first half of August. How much has he yet to save?
9. A man drove 350, 460, and 204 miles on successive days. What was the total for the entire trip?
10. A 75 ft. roll and a 50 ft. roll of fencing were purchased. When the fence was erected, 15 ft. was not used. How many feet were actually needed?
11. A filling station operator put 2257 gallons of gasoline in an empty tank, then sold from it 843 gallons during the day. How many gallons are still needed to fill the tank which has a capacity of 4000 gallons?
12. Frank made purchases of 21 cents and 52 cents. How much change would he receive from a dollar bill?

Answers

1. $1913 + 38 = N$
2. $60 - 45 = N$
3. $25 + 10 = N$
4. $30 - 21 = N$
5. $12.20 + 23.75 - 7.50 = N$
6. $7 + 5 + 4 = N$
7. $1.75 - .55 + 1.00 = N$
8. $300 - (130 + 75) = N$
9. $350 + 460 + 204 = N$
10. $75 + 50 - 15 = N$
11. $4000 - (2257 - 843) = N$
12. $100 - (21 + 52)$

Fresno City Unified School District

T6 - A - 4

ARITHMETIC

Write your answers on another piece of paper.

1. Which of the numbers shown below give the same total when added as they do when multiplied?

   1 2 3 4 5 6 7 8 Ans. two

2. Can you tell where or whether this will end?

   9 times 9 plus 7 equals 88
   98 times 9 plus 6 equals 888
   987 times 9 plus 5 equals 8888

   Ans. This problem ends when you get to zero.

3. Can you place the signs in that will make this a correct statement?

   1 2 3 4 5 6 7 8 9 equals 100

   Ans. 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 times 9 equals 100

4. There is an easy way to find out whether a number can be divided by 9. Just add the figures of the number, and if the sum can be divided by 9, the number is divisible by 9. For example, the sum of the digits 47,835 is 27, which is, of course, divisible by 9. Therefore, 47,835 is divisible by 9. Why does this work? Nobody knows, but it does. . . Which of the following numbers are divisible by nine?

   162 4050 8371 1197

   Ans. 162 4050 1197

5. When asked how many pets he had, a boy said, "All my pets are cats but two, all of my pets are dogs but two, and all my pets are ponies but two." How many pets did he have?

   Ans. He had three pets. dog, cat, pony

6. How many times a day does a clock strike if it strikes only for the hours? (Give answers for a 12 and a 24-hour day.)

   Ans. 78 and 156

7. Two boys who had sold lemonade at a sidewalk stand counted their money at the end of the day. When they had removed the amount of change they had started with, one boy said to the other, "Here, count this. It's what we made today." The boy counted and said, "We have 80¢. It's all nickels and dimes. There are twice as many nickels as dimes." How many nickels and how many dimes did the boys have?

   Ans. 8 nickels and 4 dimes

8. Edward bought a toy gun and then decided to buy the holster that went with the gun. The gun and holster together cost $1.50. The gun cost $1.00 more than the holster. How much did each cost?

   Ans. gun--$1.25; holster--$.25

9. Can you write 16 fours so that their sum is equal to 1000? Here is a little hint: 444 plus 444 equals 888.

   Ans. 444 + 444 + 44 + 44 + 4 + 4 + 4 +4 + 4 + 4 - 100

10. Can you write the signs that will make this equation correct?

    7 7 7 7 equals 6

    Ans. 7 times 7 minus 7 divided by 7 equals 6

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T6 - A - 5

PROBLEM SOLVING

Write your answers on another piece of paper.

1. Bobby had two coins which totaled 60 cents. One coin was not a dime. What were the two coins?

   Ans. He had a 50¢ piece and a 10¢ piece.

2. The teacher told her class, "I was at the post office yesterday afternoon. The post office clerk said, 'For a cent and a quarter you will get 13 postal cards.' What was the cost of each card?"

   Ans. 2¢ each

3. A man found a billfold with four bills in it. The total amount of money was $11.00. What were the four bills?

   Ans. One $5 bill, and three $2 bills

4. "Twice eight and five ducks sitting in the rain. One shot killed a seventh. How many did remain?"

   Ans. The three dead ducks remained.

5. Why would any woman rather wash a mirror than wash a window of the same size? You may assume that both are equally easy to get at.

   Ans. A mirror only has one side.

6. What is the difference between twice 25 and twice 5 and 20?

   Ans. 2 times 25 equals 50; 2 times 5 equals 10 plus 20 equals 30

7. "Two sons and two fathers went hunting," the teacher said. They soon killed three rabbits. When the hunt was over, they divided the rabbits equally without cutting a rabbit into pieces. How was this possible?"

   Ans. A grandfather, his son, and his grandson--There were only 3 on the trip.

8. Two North Dakota boys were visiting. One of the boys said, "Our farm is exactly a mile square." "That's interesting," commented the other boy, "ours contains a square mile." What is the difference in the size of the two boys' farms?

   Ans. The shape might differ, but the areas are both the same.

9. The teacher tells this story. . . Mr. Jones drove from Fresno to Mendota, which is a distance of 60 miles, in 80 minutes. On the return trip, he drove at the same speed, but it took him 1 hour and 20 minutes. Can you explain this?

   Ans. 80 minutes is the same as one hour and 20 minutes.

10. How much is 3 times 2 times 4 times 5 times 0 times 7?

    Ans. zero

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T6 - A - 6

ARITHMETIC

(Money)

Write your answers on another piece of paper.

1. Where are the largest coins in the world used?

   Ans. On the Pacific Islands of Yap--Made of stone, the coins measure from 2 to 12 feet in diameter.

2. How often may the design on U.S. coins be changed?

   Ans. According to the law, not more than once in 25 years

3. How long does the average dollar bill last before it wears out?

   Ans. About nine months

4. Why is a two-dollar bill considered unlucky?

   Ans. Probably because it is so easily mistaken for a one-dollar bill.

5. Is it against the law to pay a debt in pennies?

   Ans. Not if the amount is 25 cents or under, but no one need accept more than 25 pennies in payment of a debt.

6. What do Eskimos on the islands off Alaska use for money?

   Ans. Fishhooks and gumdrops-- They are valuable because they are not easy to get.

7. How much nickel does a nickel contain?

   Ans. None--A nickel contains silver and alloy.

8. Why were owls often shown on coins in ancient times?

   Ans. To suggest that the coins be spent wisely

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T6 - A - 7

ARITHMETIC

Write your answers on another piece of paper.

Find the right signs for each example:

Example. 2 x 4 = 4 + 4   2 x 4 = 8   4 + 4 = 8

(1) 4--+---5 = 18--−---9

(2) 6--x---6 = 2--x--18

(3) 9--÷---9 = 8--−---7

(4) 8--x---8 = 4---x-16

(5) 10--+---5 = 5---x--3

(6) 20--−----8 = 24--÷---2

(7) 20--−----5 = 10---+---5

(8) 96--÷----6 = 1--x--16

(9) 5--+---5 = 12---−--2

(10) 18--÷---2 = 3---x---3

1. Joe's father said that 2520 can be divided by each number from 2 to 9 without a remainder. Was Joe's father right?

   Ans. yes

2. What is the smallest number that can be made with each of the figures 1, 2, 3, 4. What is the largest?

   Ans. 1,234 smallest
   4,321 largest

3. My name begins with 500. It also ends with 500. The letters between are the first letter of the alphabet and numerals. What is my name?

   Ans. David

4. Take the number 142857 and multiply it by 2. You should get 285717. Notice that this has the same figures in it, arranged in slightly different order. That is, the 14 is at the right side. Now multiply 142857 by 3,4,5 and 6 and see if you get the same figures.

   Ans.

$$\begin{array}{r}142857\\ \times\ 3\\ \hline 428571\end{array}\qquad\begin{array}{r}142857\\ \times\ 4\\ \hline 571428\end{array}\qquad\begin{array}{r}142857\\ \times\ 5\\ \hline 714285\end{array}\qquad\begin{array}{r}142857\\ \times\ 6\\ \hline 857142\end{array}$$

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T6 - A - 8

ARITHMETIC

Copy the numbers and put decimal points where you think they belong.

Write your answers on another piece of paper.

1. Harry grew 25 in. last year. Ans. 2.5

2. Mr. Adams weighs 18.9 lbs. Ans. 189.

3. Mr. Anderson's automobile averages 175 miles on a gallon of gasoline. Ans. 17.5

4. Mary's bedroom is 1.4 ft. by 125 ft. Ans. 14. by 12.5

5. A very fast ocean vessel can travel 285 to 330 miles an hour. Ans. 28.5 to 33.0

Read these famous dates. Find what each date is famous for.

6. NCCXV - 1215
7. MCDXCII - 1492
8. MDCVII - 1607
9. MDCCLXXVI - 1776
10. MDCCLXXXIX - 1789
11. MDCCCLXV - 1865

Find the plan that was used to get each row of numbers below.
Then write the missing numbers.

Row A	5	9	13	17	21	25	29	33
Row B	7	13	19	25	31	37	43	49
Row C	25	22	19	16	13	10	7	4
Row D	9	15	21	27	33	39	45	51
Row E	47	41	35	29	23	17	11	5

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T6 - A - 9

ARITHMETIC

Write your answers on another piece of paper.

1. Write an addition example whose sum is 10, using five threes.

Ans.
3
3
3
3/3
10

2. Write an example whose sum is 26, using only fives.

Ans.
5
5
5
5
5
5/5
26

3. Write a fraction that you can invert and get an answer 9 times as large as the fraction.

Ans. 1/3

ROMAN NUMERALS

Multiply	Divide
1. VII x VII = 49	5. XXVIII ÷ IV = 7
2. XX x V = 100	6. XXV ÷ V = 5
3. C x C = 10,000	7. M ÷ C = 10
4. IX x V = 45	8. X ÷ II = 5

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Write your answers on another piece of paper.

T6 - A - 10

TREASURE CLUE MYSTERY DATE

Start at the arrow. Find the answer to the first box. Transfer this answer to the box to the left because the answer is in the tens. Transfer each box's answer from then on in the following manner:

ones - to the right →
tens - to the left ←
hundreds - down ↓
thousands - up ↑

Work until you get to the last box. The first and last box will give you a clue to the mystery date. Put it here 1776.

Start here

x 8 392	- 38 49	+ 29 87	x 2 58	3) 29	+ 38 87	- 29 49	- 7743 78	17 x 9 153	8 + 9 17
+ 548 940	- 7711 9	x 48 432	☒	99) 76	- 1096 3	x 3 9	x 869 7821	+ 246 399	☒
5) 188	+ 1897 7720	+ 479 911	☒	+ 1705 7524	- 864 1099	☒	52 x 6 312	- 347 52	☒
- 179 9	x 647 5823	- 381 530	☒	+ 1819 5819	3) 1963	☒	- 187 125	- 996 4	x 228 912
x 4 396	+ 89 99	53) 10	☒	x 4 4000	- 3057 5889	☒	25) 5	+ 995 1000	- 688 224
- 174 222	- 991 9	x 84 756	- 1106 1	x 1000 1000	x 3 8946	☒	x 6 576	x 3 96	7) 32
+ 389 611	- 225 1000	- 747 9	x 123 1107	- 5991 9	+ 2973 2982	☒	- 567 9	x 87 783	☒
- 350 261	x 49 1225	- 7784 25	☒	+ 499 6000	x 12 780	+ 39 65	- 2189 26	- 99 684	☒
29) 9	+ 99 708	+ 4038 7809	☒	+ 1838 5501	+ 111 891	☒	+ 1094 2215	6) 114	☒
☒	12) 9	x 419 3771	☒	x 37 3663	9) 99	☒	x 59 7121	6) 19	☒

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T6 - A - 11

FRACTIONS

(Answer Sheet)

A [✓ 3/4] 6/8 10/12	B [✓ 2/3] 5/6 3/4	C 4/9 5/8 [✓ 3/4]	D [✓ 9/4] 4/9 4/8	E [✓ 1/2] 2/2 3/2
F 4 1/4	G X 2 1/3 9 11/12	H + 1/12 10	I ÷ 1 2/3 6	J X 4/5 4 4/5
K 5 43/60	L − 5 2/3 1/20	M 1 1/5	N 6 18/100	O + 41/50 7
P 6	Q 67 1/5	R + 32 4/5 100	S 500	T 292 28/41
U + 13/41 293	V 1758	W 1406 4/10	X 1422 7/10	Y + 69 3/10 1492

A. Circle the reduced fraction.

B. Circle the smallest fraction.

C. Circle the largest fraction.

D. Circle the improper fraction.

E. Circle the proper fraction.

F. Add the answers for A, C, D, and E and put the sum in F.

K. Add the highest answer from the problems in line 1 at the top of page 346.

M. Divide by the lowest answer of the problems in line 1 at the top of page 349.

N. Multiply by the answer to the last problem on page 349.

P. Multiply by the smallest answer from line eight on page 359.

Q. Multiply by the largest answer on the bottom line of page 361.

S. Multiply by the highest answer on line 4 at the top of page 364.

T. Divide by the answer to problem 6d, page 347.

V. Multiply by the highest answer on line 3, top of page 356.

W. Multiply by the answer to problem 4b, page 349.

X. Add the answer to 6g, page 347.

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T6 - A - 12

Write your answers on another piece of paper.

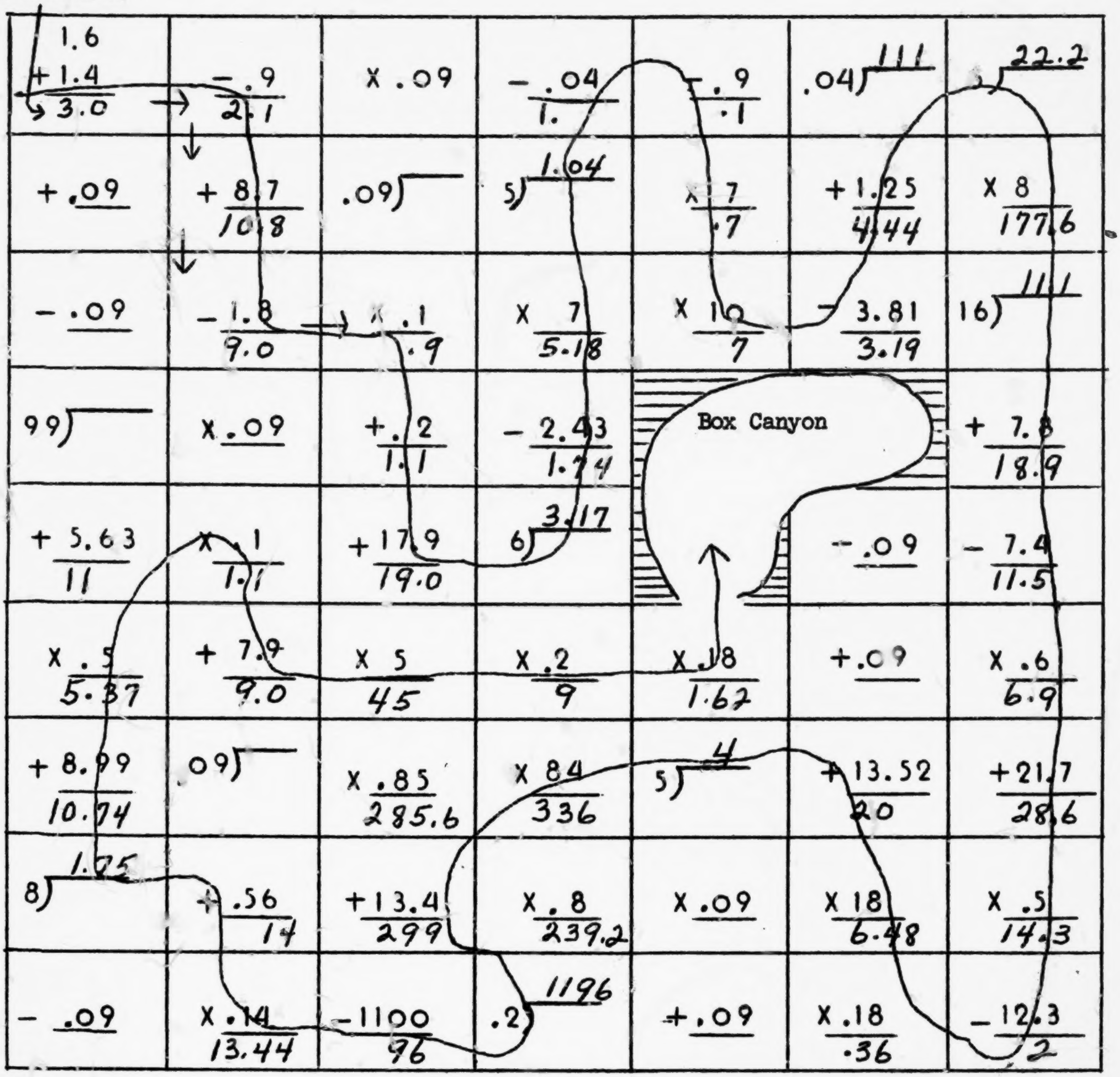
DECIMALS
(Answer Sheet)

The object of this game is to find your way into the box canyon. First figure the answer to the starting box. If the answer is in tenths, move that answer down into the next box; if the answer is in hundreths, move that answer up into the next box; if the answer is an odd whole number, move it into the box to the right. An even number is to be moved to the left.

If necessary carry any answer to three decimals (thousandths) and round off to hundreths. Transfer each box's answer to the appropriate box. You will not have to use all of the boxes to get into the box canyon. Drop all unneeded zeros.

TENTHS↓ HUNDRETHS↑ ODD NUMBERS → EVEN NUMBERS ←

Stare here



1.6 + 1.4 3.0 →	- .9 2.1	X .09	- .04 1.	- .9 .1	111 .04)	22.2 5)
+ .09	+ 8.7 10.8	.09)	1.04 5)	X 7 .7	+ 1.25 4.44	X 8 177.6
- .09	- 1.8 9.0 →	X .1 .9	X 7 5.18	X 10 7	- 3.81 3.19	11.1 16)
99)	X .09	+ .2 1.1	- 2.43 1.74	Box Canyon		+ 7.8 18.9
+ 5.63 11	X .1 1.1	+ 17.9 19.0	3.17 6)		- .09	- 7.4 11.5
X .5 5.37	+ 7.9 9.0	X 5 45	X .2 9	X .18 1.67	+ .09	X .6 6.9
+ 8.99 10.74	.09)	X .85 285.6	X 84 336	4 5)	+ 13.52 20	+ 21.7 28.6
1.75 8)	+ .56 14	+ 13.4 299	X .8 239.2	X .09	X 18 6.48	X .5 14.3
- .09	X .14 13.44	-1100 96	1196 .2)	+ .09	X .18 .36	- 12.3 2

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T6 - L - 1

Fresno City Unified School District

LANGUAGE

Choose the correct word for the blank spaces. Watch the spelling carefully. Write your answers on another piece of paper.

Dear Uncle John,

We just arrived home from a trip out west. We saw all kinds of ___(1)___ and the ___(2)___ was good most of the time. We drove ___(3)___ the ___(4)___ and in the ___(5)___.

At the Grand ___(6)___ I rode a ___(7)___. We had a ___(8)___ who took us down a ___(9)___ ___(10)___.

We brought home a lot of ___(11)___ things. I like my ___(12)___ ___(13)___ the best.

Your ___(14)___

Jack

1. senery, scenry, scenery
2. whether, weather, wether
3. through, threw, thorough
4. dessert, dezert, desert
5. mountians, mountans, mountains
6. canyon, cannon, kanion
7. burrow, burro, buro
8. gide, giude, guide
9. stepe, steap, steep
10. trial, trail, trale
11. intresting, interesting, intristing
12. Indain, Indian, Indyan
13. moccassins, mocassins, moccasins
14. nefew, nephiew, nephew

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WORD ORIGIN

Write your answers on another piece of paper.

Where do we get these words?

1. Hippopotamus

   Ans. Hippopotamus - The Greeks called the hippo "river horse," using the Greek words hippos, which means horse, and potamus, which means river.

2. Clock

   Ans. Clock - from the Latin word clocca meaning bell

3. Hamburger

   Ans. Hamburger - from the city of Hamburg, Germany, where the first hamburgers were made

4. News

   Ans. News - from the word "new," not from the initials of north, east, west, south as people often believe

5. Sundae

   Ans. Sundae - from the fact that it was originally a treat sold on Sundays only

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T6 - L - 3

PROFESSOR EGGHEAD'S PROVERBS

Professor J. Egghead likes to use big words and complicated sentences. Here is how the professor would say five well-known proverbs. See how many you can recognize.

Write your answers on another piece of paper.

1. A rolling stone gathers no moss.

2. Look before you leap.

3. Never count your chickens before they hatch.

4. Too many cooks spoil the broth.

5. A bird in the hand is worth two in the bush.

6. A new broom sweeps clean.

7. All's fair in love and war.

8. Faint heart never won fair lady.

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T6 - L - 4

1. If an alligator is an animal, is an alligator pear fruit for an alligator?

   Ans. No (Alligator pear - avacado)

2. If a ghost is the spirit of one who is dead appearing to the living, is aghast a ghost appearing to the dead?

   Ans. No (aghast - frightened; struck with surprise or horror)

3. If you had a roommate, could you ruminate?

   Ans. No (ruminate - chew the cud; keep thinking about, ponder)

4. If mother wanted you to cut apples into cubes for a salad, would she say, "Cubit, please."?

   Ans. No (cubit - an ancient measure of length, 18 to 22 inches)

5. Is a gunwale related to a whale?

   Ans. No (gunwale - the upper edge of a ship's or boat's side)

6. Since we eat popsicles from a stick, would we do the same with succor?

   Ans. No (succor - help; aid)

7. If you asked grandmother where grampus is, would she probably say, "In the water."?

   Ans. Yes (grampus - large fierce dolphin; killer whale)

8. If daisies are many flowers, is a dais one flower?

   Ans. No (dais - raised platform at the end of a hall or large room)

9. Would you like to be an elocutionist?

   Ans. Yes (elocutionist - person skilled in elocution)

10. Would you put treacle in muffins?

    Ans. Yes (treacle - molasses)

11. Could we say that Lucy speaks with lucidity?

    Ans. Yes (lucidity - clearness, especially of thought, expression)

12. Could a historical story become a hysterical story?

    Ans. Yes (hysterical - unnaturally excited; unable to stop laughing, crying, etc.)

13. Does a jockey play in a hockey game?

    Ans. No (jockey - boy or man who rides horses in races as an occupation)
    (hockey - game played by two teams on ice or on a field)

14. Is there a dearth of earth on the moon?

    Ans. Yes (dearth - scarceness; lack, too small a supply)

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T6 - L - 5

VIVE LA FRANCE!

Parlez-vous francais? Some people like to show off by using foreign words in talking and writing. You won't win any popularity contests that way, but you should be familiar with the meaning of some common foreign expressions. Try your knowledge of French on the words below. Each came from the French without change in spelling or meaning. In the blank in front of each item in Column A, write the letter of the phrase in Column B that matches it.

Write your answers on another piece of paper.

Column A	Column B
d 1. savoir faire	a. on the way
e 2. bon voyage	b. blunder
b 3. faux pas	c. pen name
a 4. en route	d. tact
c 5. nom de plume	e. pleasant journey

Rhyme Time: The French are sticklers for good pronunciation. Few Americans ever pronounce French words well enough to be mistaken for Frenchmen. Some sounds in the French language are not in English at all. It's hard for someone who did not learn to speak French as a small child to say French words with a true French flavor. Each of the following words comes from France. In English, their spelling, meaning, and pronunciation have changed only slightly. Look up each word in your dictionary. Then, show that you can pronounce the word by drawing a ring around the word to the right of it that rhymes with it.

1. ballet	mallet	[✓ display]
2. cliché	[✓ obey]	quick
3. garage	[✓ barrage]	manage
4. mauve	[✓ drove]	love
5. piety	kitty	[✓ anxiety]

French Cuisine: The French are world famous for their fine cooking (cuisine). Every word on the menu below is either French or of French origin. Look at the menu; would you know what to order? A good dictionary will help you. Consult it to answer each of the questions that follow:

Á LA CARTE MENU

APPETIZER

Juice . Melon
Soup du Jour . Hors d'oeuvres

ENTRÉE

Filet Mignon Sautéed Oysters
Veal Cutlet au Gratin . Onion Omelet

VEGETABLES

Carrots . Spinach . Cabbage
Rice . Cauliflower

SALADS

Lettuce & Cucumber
Radishes & Scallions

DESSERTS

Éclair . Pie á la Mode
Cantaloupe . Grapes . Gelatin

1. Another term for Menu is (the food served)
2. The expression á la carte means (dishes priced separately).
3. Hors d'oeuvres are relishes usually served (at the beginning of a meal).
4. The words du jour mean (of the day).
5. The main course in a meal is the (entrée).
6. Filet mignon is a cut of (meat).
7. A dish that is sautéed is (fried).
8. A veal cutlet au gratin would probably be covered with (bread crumbs).
9. An eclair is a (pastry).
10. Á la mode means (with ice cream).

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T6 - M - 1

THE GREAT COMPOSERS

Can you match the composer with his biography? Write your answers on another piece of paper.

1

A famous Russian composer, I was born in 1840. My works include Nutcracker Suite, Swan Lake, Romeo and Juliet, and Sleeping Beauty.

2

Born in 1861, I am the first American composer to achieve an international reputation. To a Wild Rose and The Tailor and the Bear are two of my compositions.

3

I was born in Germany in 1756. At the age of six, I played the piano and composed Minuet in F. Some say my music has the touch of magic. My operas include The Magic Flute and Don Giovanni.

4

My wife, Clara, became the most famous performer of my piano music. In addition to writing songs, symphonies, and piano pieces, I was an excellent pianist.

5

Born in 1770, I lived most of my life in Vienna, was a student of Haydn, and wrote nine symphonies, including the Heroic, the Pastoral, and The Choral Symphony.

(4) ROBERT SCHUMANN
GEORGE FREDERIC HANDEL
(1) PETER TCHAIKOVSKY
(5) LUDWIG VAN BEETHOVEN
(2) EDWARD MacDOWELL
JOHANNES BRAHMS
(3) WOLFGANG MOZART
JOSEPH HAYDN

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T6 - R - 1

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REFERENCE QUIZ

Write your answers on another piece of paper.

In which of the following references would you look to find the answers to the questions below.

a. Rand-McNally Atlas

b. Information Please or World Almanac

c. Children's Catalog

d. U. S. Government Organization Manual

1. Where are the Big Rock Candy Mountains?

Ans. a. Rand-McNally Atlas

2. What is the batting average of Mickey Mantle?

Ans. b. Information Please or World Almanac

3. When is Guy Fawkes Day?

Ans. b. Information Please or World Almanac

4. Deborah Doublefoot wrote a book for children about children who turned into monkeys after school. What is the title?

Ans. c. Children's Catalog

5. On what day does Easter fall in 1965?

Ans. b. Information Please or World Almanac

6. What is a good story for your small brother or sister about flying to the moon?

Ans. c. Children's Catalogue

7. What is the phone number of the Federal Bureau of Investigation in Washington, D. C?

Ans. d. U. S. Government Organization Manual

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T6 - R - 2

CHOOSE THE TWOS

In the following MESSAY (or Messy-essay), select every word, sign symbol, number or phrase that in any way indicates or represents the idea of TWO. However, at the same time take care not to select anything that does not come under these headings, or does not relate to or convey the idea of TWO.

Write your answers on another piece of paper.

THE MESSAY

Mark Twain took but two seconds to recheck his observation of the binary stars in the constellation Gemini. His second result agreed with that obtained by the binomial theorem in his parents' duplex apartment. "A pair of deuces," he repeated as the twins came in together. "Too late!" said the couple, starting to sing a duet. Only a fortnight ago they had planted biennials where the byway met the by-pass (a Siamese connection in the aqueduct). Since this once again seemed like double-crossing, Mark Twain duplicated his order for a brace of partridges and drove off between them, in a tandem drawn by a yoke of oxen with dual personalities.

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SCRAMBLED HEADLINES

Here are some headlines, each composed of five words, not making much sense as now written.

Combine some of the words in each sentence with words from the other two, rearrange them to make three sensible five-word headings. Every word must be used, and no changes in spelling are allowed. Write your three headlines on another piece of paper.

1. MASKED DOGS FIRE IN UNION

2. MEN DIE AT VALUABLE FIRE

3. BANDIT FIRES ALL BOSS COPS

Ans. COPS FIRE AT MASKED BANDIT

BOSS FIRES ALL UNION MEN

VALUABLE DOGS DIE IN FIRE

Do the same with the following scrambled headlines. Make two sensible headlines, one with five words and the other with six.

1. RECORD MARKETS BEAT SALES HOME

2. TEAMS FORCED UNDER DECLINE TO HOPE

Ans. MARKETS DECLINE UNDER FORCED SALES

HOME TEAMS HOPE TO BEAT RECORD

T6 - R - 4

ALPHABET SOUP

In each of the jumbled alphabets printed below, there is a concealed word of at least eleven letters. Each word is spelled with its letters all in correct order reading from left to right.

Find the correct letters as in the following example:
Write your words on another piece of paper.

M V N Q U A S L G H E P D I X C K T B O W R Z Y J F

11-letter word - VALEDICTORY

Begin with the letters underlined

C F G S Q U M B O W R D H I N X A Z T E K L V P Y J

1. 13-letter word SUBORDINATELY

S L W Z T M E N V D O X G R Y F A J P H B Q U I C K

2. 12-letter word STENOGRAPHIC

F M Q U R J E C K D O G H N I Z X A B V L W Y S T P

3. 12-letter word RECOGNIZABLY

P F B L E A T Y G R J O V Z Q U M I N C K D S H X W

4. 11-letter word PLAYGROUNDS

B W O Q U G L Y R K M Z V A J N S H F E X I C T P D

5. 11-letter word WORKMANSHIP

D L S O J Y N V M P F A B T H X I C K Z Q U E G R W

6. 11-letter word SYMPATHIZER

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TS - R - 5

HYPERPOLYSYLLABICSESQUIPEDALIANISM

Having trouble gulping down the title of this page? What a serving (34 "lettersful") of alphabet soup it makes! But don't let a big word like hyperpolysyllabicsesquipedalianism upset you. Try swallowing it a spoonful at a time.

1.	hyper-	more than	4.	sesqui-	one and a half
2.	poly-	many	5.	pedalian-	foot
3.	syllabic	syllables	6.	ism	the act of (using)

Sip by sip, then, the 34 letters mean "the act of using a great many syllables to form words that are a foot and a half long"; or, to put it briefly, "the overuse of long words." Here are three other sesquipedalians: floccinaucinihilipilification (29 letters meaning "the habit of estimating as worthless"), honorificabilitudinitatibus (27 letters meaning "honorableness") and pneumonoultramicroscopicsilicovolcanokoniosis (45 letters that make up the name of a disease of the lungs). Back in 1939, this last word was reported to be the longest word in the English language. Can you top it?

Not all long words are difficult; on the line to the left of the words in Column A write the letter of the expression in Column B that best defines it.

	COLUMN A	COLUMN B
h	1. procrastinate	a. not to be recalled or withdrawn
d	2. controversial	b. the act of working together on something
f	3. unanimously	c. with the author's name unknown
a	4. irrevocable	d. having to do with arguments
g	5. pedestrian	e. existing or happening at the same time
c	6. anonymous	f. with everyone in complete agreement
b	7. collaboratior	g. a person who goes on foot
j	8. totalitarianism	h. to put things off until later
e	9. simultaneously	i. tireless, untiring
i	10. indefatigable	j. tyrannical rule by one political group

Not all short words are easy words, for some can really baffle you. See how well you can do this puzzle using three or four-letter words.

ACROSS

1. help
4. declare
7. pale
8. mimic
9. small whirlpool
10. encountered
15. cover
17. __________ mater
19. dry
20. fall behind
21. used in tennis, fishing
22. wood for burning the dead

DOWN

1. fear and wonder
2. past tense of "bid"
3. finish
4. energy, vigor
5. sign of the future
6. rainy
11. close group
12. prepare for publication
13. wartime partner
14. wise man
16. anger
18. injure, damage

1 A	2 B	3 E	T	▨	4 V	5 O	6 W
7 W	A	N	▨	8 M	I	M	E
9 E	D	D	Y	▨	10 M	E	T
▨	E	▨	3's and 4's		▨	N	▨
11 C	▨	12 E			13 A	▨	14 S
15 L	16 I	D	▨	17 A	L	18 M	A
19 A	R	I	D	▨	20 L	A	G
21 N	E	T	▨	22 P	Y	R	E

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T6 - R - 6

FINDING MATERIALS IN MORE THAN ONE CLASS

Use the Dewey Decimal System of Classification List in The Children's Book on How to Use Books and Libraries, pages 34-37.

Fill in the blanks below, showing in which classes you may find books about each subject.

Circle the Best Class of books in which to find material.

Write your answers on another piece of paper.

Subject	Classes
1. Hawaiian Islands--Geography and Travel	910 917 917.3 [✓ 919]
2. California--Missions	917.94 970.1 973 973.1 [✓ 979.4]
3. Christopher Columbus	910 914 914.6 917 930 940 970 970.1 973 [✓ 973.1]
4. Cotton of Egypt	916 930 [✓ 960]
5. Colonel Charles A. Lindbergh	[✓ 629] 920 970 973
6. George Washington	920 921 930 970 [✓ 973] 973.2 973.3

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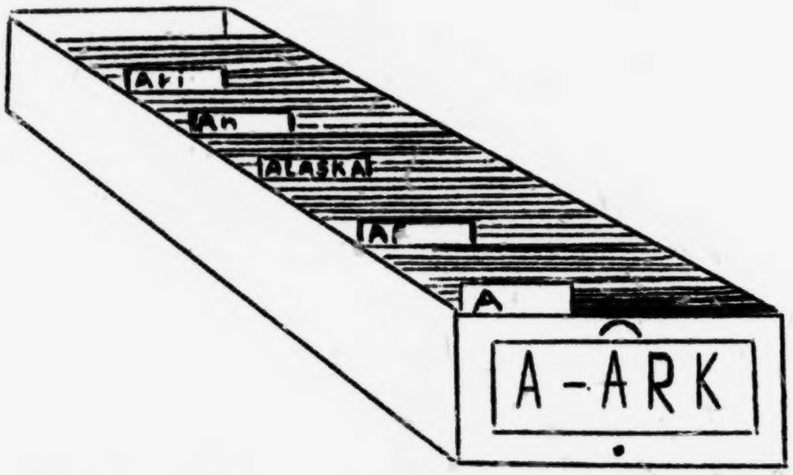
T6 - R - 7

USING "INSIDE GUIDES" OF THE CATALOG

Reference: Children's Book on How to Use Books and Libraries

By using the illustration below, write between which guide cards the following author, subject and title cards may be found. Write your answers on another piece of paper.



1. Between An - Ari Animals--Stories (Subject)

2. Between An - Ari Hans Andersen (Author)

3. Between An - Ari Arabs (Subject)

4. Between Af - Alaska Africa (Subject)

5. Between Alaska - An Alfalfa (Subject)

6. Between A - AF Aesop's Fables (Title)

7. Between Alaska - An The Alamo (Subject)

8. Between An - Ari Ants (Subject)

9. Between Af - Alaska Airplanes (Subject)

10. Between Alaska - An Louisa May Alcott (Author)

11. Between Alaska - An Amazon River (Subject)

12. Between An - Arctic Arctic Ocean (Subject)

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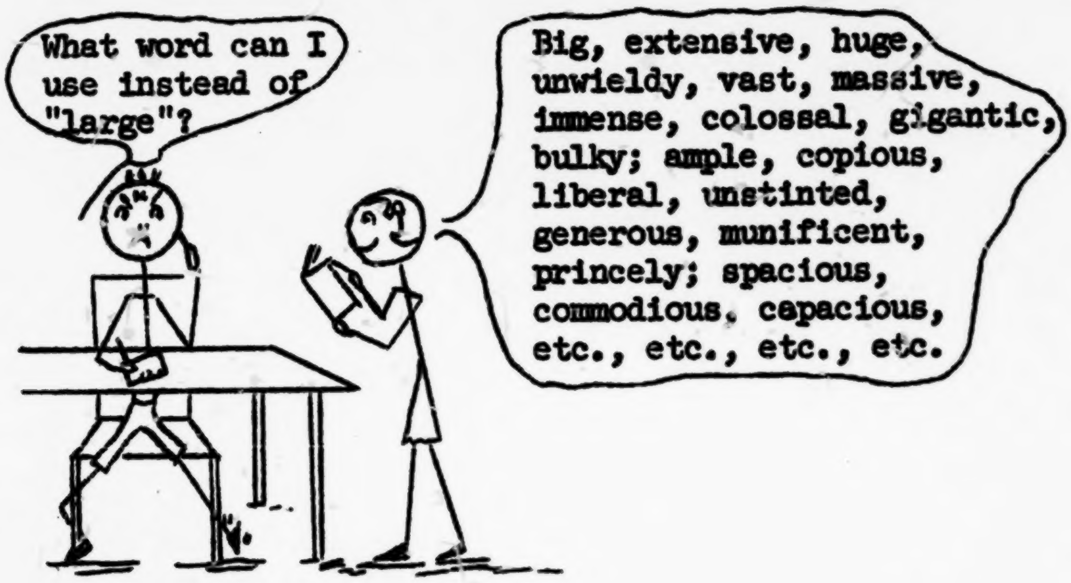
T6 - R - 8

USING THE DICTIONARY TO FIND SYNONYMS

Reference: The Children's Book on How to Use Books and Libraries, pages 146-147

Use the chart of dictionary differences to see in which dictionaries synonyms may be found.

Find one synonym for each of the words underlined. Be sure you know the meaning of the synonym you write. Write your answers on another piece of paper.


What word can I use instead of "large"?
Big, extensive, huge, unwieldy, vast, massive, immense, colossal, gigantic, bulky; ample, copious, liberal, unstinted, generous, munificent, princely; spacious, commodious, capacious, etc., etc., etc., etc.

1. When he was in the woods, John saw a great bear. large
2. The Greedy Goat is the title of a story. hungry
3. She had a fear of falling off the horse. dread
4. The man was very feeble. weak
5. He is very successful in his work. satisfactory
6. He is a sullen person. glum
7. It is cant to call a man a "guy." hypocritical
8. He showed great loyalty to his party. allegiance
9. She is a garrulous person. talkative
10. Do you see that brilliant star? bright
11. She is always prompt in doing her lessons. quick
12. She sent a cordial letter. sincere

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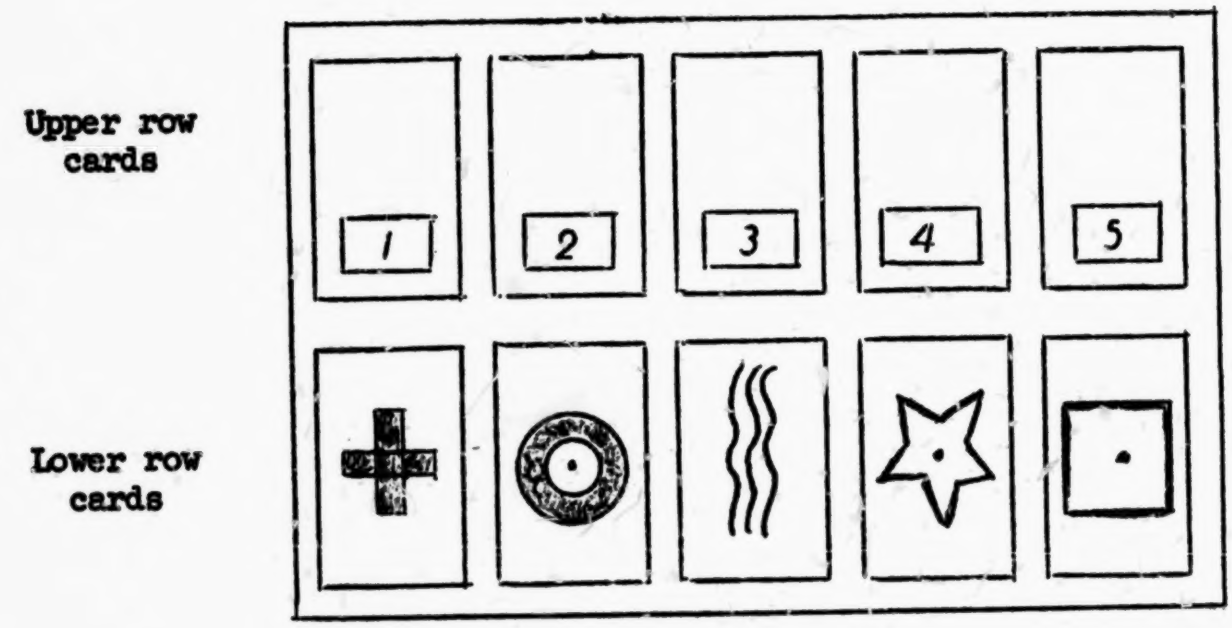
EXTRA SENSORY PERCEPTION



The upper row of cards is in an entirely different order from the lower row. Follow the directions given in A, B, C & D to place the cards in proper order.

A. The PLUS isn't next to the WAVE; neither is the CIRCLE.

B. The CIRCLE isn't next to the STAR; neither is the PLUS.

C. The WAVE isn't next to the SQUARE; neither is the CIRCLE.

D. The STAR is just to the right of the SQUARE.

Write your answers on another piece of paper.

No. 1	No. 2	No. 3	No. 4	No. 5
Circle				
Ans. Circle	Plus	Square	Star	Wave

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T6 - R - 10

WHAT IS THE BEST WORD TO USE?

Reference: The Children's Book on How to Use Books and Libraries, pages 134-135

Write your answers on another piece of paper.

One little word may have many meanings. For example, look at the word hold. Look through the meanings and find the one which best fits the sentence.

1. This pail will hold two quarts of water.

   Ans. This means you are able to put two quarts of water into the pail.

2. The man shouted, "Hold!"

   Ans. Hold means stop.

3. The hold of the whites saved them from the warlike Indians.

   Ans. In this sentence, hold means a fort.

4. "Hold the dog while I go into the house," said Mary.

   Ans. Hold means hang on to.

5. "Where shall we hold the library meeting?"

   Ans. In this sentence hold means have.

6. Will he hold out until the end of the game?

   Ans. Hold out means be able to play or endure.

7. The theatre manager said he would hold over the show another week.

   Ans. Hold over in this sentence means continue.

8. "It's a hold up!" shouted the boys.

   Ans. Hold up means a robbery.

9. The girl's mother said, "One must learn to hold one's peace."

   Ans. Hold ones peace means to keep still at the right time.

10. The speaker will hold forth for an hour.

    Ans. Hold forth means talk.

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T6 - S - 1

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SCIENCE

Reference: World Book

Write your answers on another piece of paper.

1. What is the name for the scientific study of language?

   Reference: World Book--P - 6284

2. Who was "the Father of Medical Science"?

   Reference: World Book--H - 3425

3. About how many kinds of minerals have scientists collected?

   Reference: World Book--M - 5081

4. How many constellations do modern astronomers recognize?

   Reference: World Book--C - 1695

5. What is an asteroid? What is the diameter of the largest one?

   Reference: World Book--A - 492

6. Why has only one side of the moon ever been seen by man?

   Reference: World Book--M - 5228

7. About how much does the earth weigh according to estimates?

   Reference: World Book--E - 2164

8. What ancient lighthouse was called one of the "seven wonders of the world"?

   Reference: World Book--L - 4443

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T6 - S - 2

SCIENCE
(Fish)

Write your answers on another piece of paper.

1. How many species of fish are there in the world?

   Ans. There are at least 20,000 species of fish.

2. What is a sea serpent?

   Ans. The "sea serpent" of myths is probably the oarfish.

3. How big was the largest shark ever caught?

   Ans. 38 feet long--26,600 pounds in weight

4. Does a shark grow a new tooth when it loses one?

   Ans. Yes--Sharks can grow an unlimited supply of teeth.

5. What is the smallest fish eaten as food by people?

   Ans. The dwarf pygmy goby--a quarter of an inch long.

6. Does a fish feel pain when hooked?

   Ans. It feels very little because a fish has only a few nerves around the mouth.

7. What fish shoots its victims before eating them?

   Ans. The archer fish of the East Indies, which stuns small frogs and insects by shooting them with jets of water.

8. Which starfish has the greatest number of arms?

   Ans. The basket starfish--it has more than 80,000 arms.

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T6 - S - 3

SCIENCE

(Snakes)

Write your answers on another piece of paper.

1. Is the boa constrictor poisonous?

   Ans. No--It kills its victims by crushing them in its coils.

2. Are there such things as flying snakes?

   Ans. Some snakes in Java and Malaya can flatten themselves out like ribbons, and sail from tree to tree. They are called "flying" snakes.

3. Can the direct heat of the sun kill a rattlesnake?

   Ans. Yes--The snake cannot stand heat above 115 degrees Fahrenheit.

4. Do some snakes have legs?

   Ans. Yes--Many of the larger snakes have small legs under the skin near the tail.

5. What is the largest snake in the world?

   Ans. The anaconda, of the Amazon region of South America. It is over 25 feet long, and more than a foot thick.

6. How do snakes hear?

   Ans. Snakes have no ear openings. Their entire body picks up vibrations from the ground.

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T6 - S - 4

SCIENCE

(Space)

Write your answers on another piece of paper.

1. How close to the earth is the nearest star?

   Ans. The nearest star is the sun, 93 million miles away.

2. About how many meteors strike the earth's atmosphere every day?

   Ans. About 5 billion

3. Can a star be photographed?

   Ans. Yes

4. When was the moon first contacted by man?

   Ans. In 1946, when high-frequency radio waves reached the moon and were echoed back to the earth

5. Why is the planet Venus so bright?

   Ans. Because it is surrounded by a cloudy atmosphere which reflects a large proportion of sunlight, and because it is nearer the earth than any other planet.

6. Are there such things as falling stars and shooting stars?

   Ans. No--They are actually meteors.

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SCIENCE

(Whales)

Write your answers on another piece of paper.

1. Is a whale a fish? Explain.

Ans. No--A whale is a warm-blooded mammal.

2. How much weight does a baby whale gain daily?

Ans. About 200 pounds.

3. Do whales spout water? Explain.

Ans. No--They breathe out moist air from their lungs, which condenses into clouds of vapor when it reaches the cool outside air.

4. What is whalebone?

Ans. Whalebone is a horny substance that grows on the roof of the mouth of certain whales. It is not bone at all.

(Trees)

1. What tree is cut during moonlight?

Ans. Mahogany is cut by the light of the moon, because at that time the tree has less sap, is sounder, and has richer color.

2. What tree is the oldest in the world?

Ans. A cypress in Tule, Mexico, which is believed to be from 4,000 to 6,000 years old --It is 125 feet in circumference.

3. What tree grows fastest?

Ans. The bamboo

4. What tree grows tallest?

Ans. The eucalyptus of Australia and the sequoia or redwood of the Pacific Coast of the U.S.

SCIENCE

Reference: How and Why Series--Books 5 and 6
Wonderworld of Science--Books 5 and 6

Write your answers on another piece of paper.

1. Explain why we have different names for typhoons and hurricanes when they are both violent winds.

   Ans. Mainly position--Pacific or Atlantic

2. Explain how water helps to change the earth's surface.

   Ans. Washes off pieces of rock, makes silt, etc.--Erosion

3. Explain how the sun changes the earth's surface.

   Ans. Cracks rock to make soil; other logical answers

4. Explain how wind helps to change the earth's surface.

   Ans. Wind erosian--also shifting of surface soils

5. Explain how the air helps to change the earth's surface.

   Ans. Chemical action and temperature

6. Explain why tornadoes are more dangerous than cyclones.

   Ans. The whirls are smaller making the wind and pressure differential greater. Cyclones are often 200 to 1000 miles across.

7. Explain why a barometer "falls."

   Ans. As air becomes warmer, it becomes lighter; therefore, the air pressure decreases.

8. How could you prove that warm air holds more moisture than cold air?

   Ans. Condensation experiments--breathing on glass, etc.

9. Name the climate zones.

   Ans. N. Frigid, N. Temperate, Torrid, S. Temperate, S. Frigid

   Look up the average temperature of one city in or near each zone.

   Children will note that the difference and similarities in zone temperatures will form a pattern from the north to the south.

10. Explain why weather forecasts are important to you, to your mother, to your father.

    Ans. Varied responses

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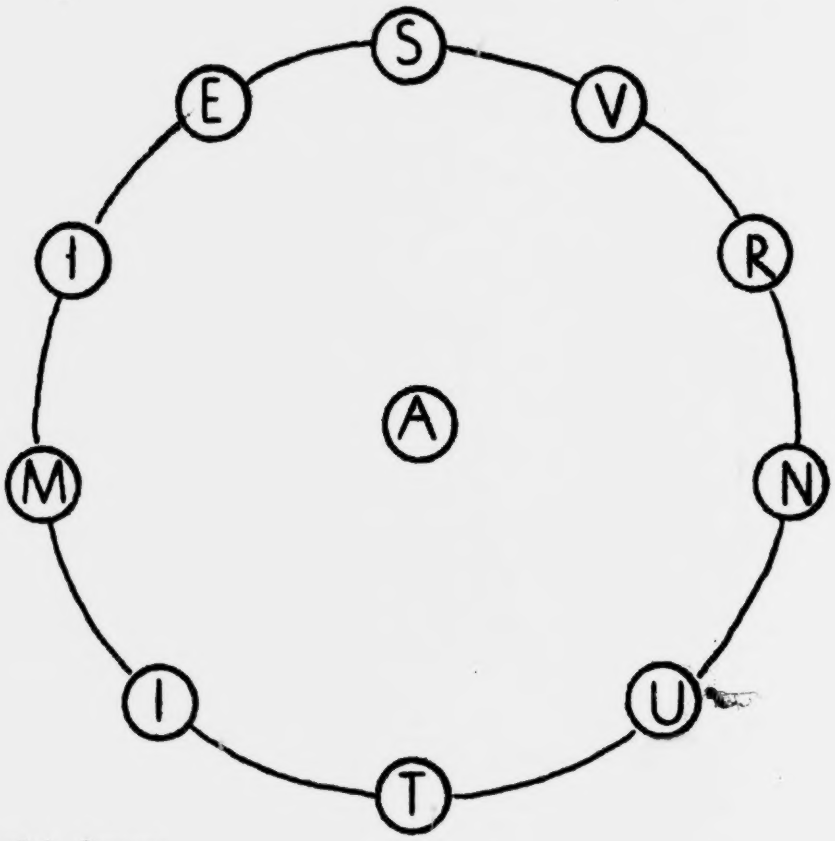
T6 - S - 7

SKY PUZZLE

Write your answers on another piece of paper.

First draw a circle on your paper and put the letters in the correct places. Then, draw five straight lines connecting certain of the letters below, so as to make a picture of one of the familiar objects in the sky and also to spell out its six-letter name.



For example, you might draw:

Two straight lines connecting three letters: S-U-N
Three straight lines connecting four letters: M-A-R-S
Four straight lines connecting five letters: V-E-N-U-S

But not one of these would make a good picture of the object whose name you were spelling.

Your five straight lines must form a perfect picture of the object whose name you are spelling out in the six letters.

To get you started connect the S with the lower I. Good Luck!

Answer for Sky Puzzle

Connect the S with the lower I -------------------- 1st line
Connect the lower I with the R -------------------- 2nd line
Connect the R with the upper I -------------------- 3rd line
Connect the upper I with the U -------------------- 4th line
Connect the U back to the top S ------------------- 5th line

This forms a star and spells the name SIRIUS, the Dog Star, one of the brightest and most prominent objects in the sky.

You can also spell out URANUS, but this does not form a familiar object in the sky.

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T6 - S - 8

SCIENCE

1. How long does it take a polliwog to turn into a frog?

   Ans. It takes a tadpole of a bullfrog two years to turn into an adult. Others take a few months and others may spend their tadpole stage in the egg. --World Book

2. What two unusual fish carry their own electric batteries?

   Ans. The Electric Eel and the Electric Catfish carry their own electric batteries. --World Book

   The eel and the Torpedo Fish have their own electric batteries. --Comptons

   The Electric Eel and the Electric Catfish carry their own electric batteries. --World Book

3. How many gallons of water can a camel drink at one time? Explain how and why.

   Ans. A camel can drink 15 gallons of water at one time. His master gives him salt to increase his thirst so the camel can go a long time without water. -- Comptons

4. How fast can a wild duck fly?

   Ans. Wild ducks can fly as fast as 70 miles per hour. -- World Book

5. How are the teeth of a rodent different from the teeth of other animals?

   Ans. The teeth are large,curved and deeply rooted especially for gnawing. Other animals have flat teeth or sharp pointed teeth. --World Book

6. What is a doodlebug? Why does it dig holes in the sand?

   Ans. A doodlebug is an ant lion. It digs a hole in the ground so it can trap ants and other small insects. --World Book

7. Do both male and female mosquitoes bite? Explain.

   Ans. Only the female mosquitoes bite because the male's beak or proboscis is not strong enough. -- World Book

8. What is the bottle tree? Where does it grow? How did it get its name?

   Ans. A bottle tree is an Australian tree. It grows in northern Australia. It got it's name because it has a short trunk that bulges like a round bottle. -- World Book

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T6 - SS - 1

THE GREAT PYRAMID OF EGYPT

Write your answers on another piece of paper.

1. How many stones were used in the great pyramid of Egypt?

Ans. 2,300,000 stones

2. How much do the stones weigh?

Ans. An average of 2½ tons each

3. How much space does the pyramid cover?

Ans. 13 acres

4. How long did it take to build?

Ans. 20 years

5. How many men worked on the great pyramid of Egypt?

Ans. 100,000 men in each relay

6. How high is the great pyramid?

Ans. 480 feet

7. Who built the great pyramid of Egypt?

Ans. Cheaps, sometimes called Khufu, a king of ancient Egypt

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In6-T-C-En-68a

T6 - SS - 2

HISTORY

(A Capital Quiz)

Write your answers on another piece of paper.

1. Why was the White House painted white?

   Ans. To conceal the fire marks on the walls, after the building was set on fire by the British in 1814

2. How much time must a Congressman spend in the House or Senate during a session at Congress?

   Ans. None--There is no law that compels a Congressman to attend any session.

3. How large are the grounds surrounding the White House?

   Ans. About 17 acres

4. Can a woman become president?

   Ans. Yes

5. How long did it take to build the Capitol?

   Ans. It took over 70 years to complete

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T6 - SS - 3

GEOGRAPHY

Write your answers on another piece of paper.

1. Which city in the world would take you longest to cross?

   Ans. Honolulu! Its boundaries extend over 540,000 square miles, most of which is the Pacific Ocean. The town itself is on the island of Oahu, but its administration reaches as far as Midway Island.

2. Why does Venice have so many canals?

   Ans. Because the city is built on more than 100 small islands

3. Which continent is the largest: Europe or South America?

   Ans. South America (twice the size of Europe)

4. What is the largest state east of the Mississippi?

   Ans. Georgia - area of 58,876 square miles

5. Is there a desert in New England?

   Ans. Yes - called the Desert of Maine, near Freeport

6. Which town has the highest altitude in the world?

   Ans. Cerro de Pasco, in Peru - in Andes Mts., about 14,000 feet above sea level

7. Is there any city in the world situated on two continents? Explain.

   Ans. Yes - One half of Istanbul, Turkey, is in Europe, the other half is across the Bosporus Strait, in Asia.

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T6 - SS - 4

HISTORY

Write your answers on another piece of paper.

1. Which king of England could not speak English?

   Ans. King George I, who ruled from 1714 to 1727
   Born a German Prince, he never tried to learn English.

2. Who was the greatest glutton in history?

   Ans. The Roman Emperor Maximus

3. Which American president was oldest when his term ended?

   Ans. Andrew Jackson--He was 70 years old.

4. Did Magellan sail around the world? Explain.

   Ans. Magellan had gone only halfway around the world when he met his death in the Philippines. But, 18 members of his crew continued the voyage, and circled the globe.

5. What was Christopher Columbus' real name?

   Ans. Cristobal Colon--He never signed his name any other way.

6. Which heavyweight champion first faught with boxing gloves?

   Ans. John L. Sullivan

7. Which American president invented a folding chair?

   Ans. Thomas Jefferson

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TRANSPORTATION AND COMMUNICATION

Reference: World Book

Write your answers on another piece of paper.

1. What were the earliest animals used for transportation?

   Reference: World Book--T - 8124

2. Why were some roads called turnpikes?

   Reference: World Book--T - 8220

3. What is stored in the camels hump?

   Reference: World Book--C - 1148

4. How did the jeep get its name?

   Reference: World Book--J - 3996d

5. What is the British term for trucks?

   Reference: World Book--T - 8181

6. How did the blimp get its name?

   Reference: World Book--B - 835

7. What ancient road was called the "Queen of Roads"?

   Reference: World Book--A - 342

8. What famous highway is sometimes called the "Main Street of the U.S."?

   Reference: World Book--L - 4475

9. What do the letters "lc" mean to a printer?

   Reference: World Book--P - 6607

10. What are the three dialects used in American speech?

    Reference: World Book--S - 7637

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SOCIAL STUDIES

Write your answers on another piece of paper.

1. How is Niagara Falls changing from year to year?

   Reference: World Book--N - 5670

2. What is the longest river in the Eastern Hemisphere? In the Western Hemisphere?

   Reference: World Book--R - 6963

3. Why do some primitive peoples wear masks during the tribal ceremonies?

   Reference: World Book--M - 4847

4. Who was the "Napoleon of South America"?

   Reference: World Book--A - 387

5. What are the two largest islands in the world?

   Reference: World Book--I - 3916

6. What is the largest fresh-water lake in the world?

   Reference: World Book--L - 4235

7. Where is the oldest church in the Americas?

   Reference: World Book--P - 6068

8. What material is used to cut diamonds?

   Reference: World Book--D - 1975-1976

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S6 - A - 1

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TREASURE CLUE

Find the shortest route to the treasure, then multiply all of the numbers along the way by either 6, 7, 8, or 9. Put the products in the blanks. Add all of these products and get the sum. Write your answers on another piece of paper.

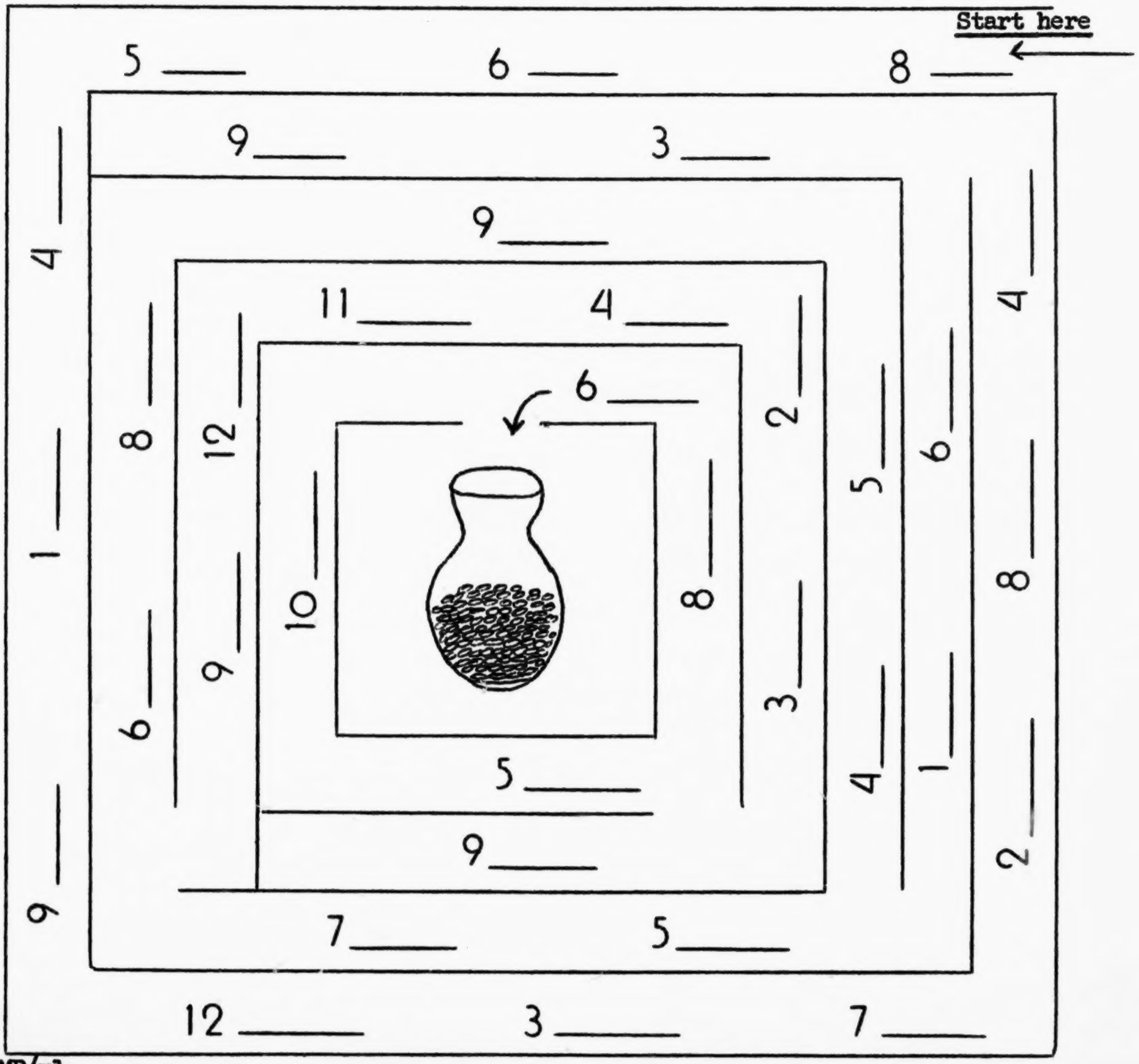
6's __________

8's __________

7's __________

9's __________

Multiply by the circled number. [✓ 6] 7 8 9


Start here
5
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3
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12
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7

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In6-S-C-En-63

S6 - A - 2

Write your answers on another piece of paper.

MAKING EQUATIONS

An equation indicates that two things are equal. Study the illustrations to show how equations may be made from statements.

(Statements)	(Equations)
a. A number increased by 3 is 11.	$n + 3 = 11$
b. Three times a number is 27.	$3n = 27$
c. Twice a number decreased by 4 is 10	$2x - 4 = 10$

Write equations for the following. Let (n) represent the number in Problems 1-12, and let (x) represent the number in the remaining problems.

1. Twice a number is 28. 1. ________
2. Half of a number is 17. 2. ________
3. A number decreased by 8 is 15. 3. ________
4. A number increased by 11 is 36. 4. ________
5. Three-fourths of a number is 18. 5. ________
6. One-third of a number plus 2 is 6. 6. ________
7. Two-thirds of a number less 3 is 9. 7. ________
8. Six times a number is 84. 8. ________
9. What number increased by 11 is 27? 9. ________
10. What number decreased by 8 is 34? 10. ________
11. Half a number plus 6 is 15. 11. ________
12. Half a number decreased by 5 is 19. 12. ________
13. Six is equal to a number less 2. 13. ________
14. Sixteen is equal to a number plus 10. 14. ________
15. Half a number plus three-fourths of the number is equal to 20. 15. ________
16. Three-fourths of a number less half of the number is 9. 16. ________
17. A number plus half of the number is equal to 18. 17. ________
18. Thirty is three-fourths of a number. 18. ________
19. A number plus twice the number is 36. 19. ________
20. Two more than twice a number is 10. 20. ________
21. Three less than twice a number is 31. 21. ________
22. A number increased by one-fourth of itself is equal to 30. 22. ________

SOLVING EQUATIONS BY THE DIVISION RULE

Example: Solve the equation $3x = 36$. (Find the value of x.)
Divide both numbers by 3.

$$3x = 36$$
$$\frac{3x}{3} = \frac{36}{3}$$
$$x = 12$$

Check
Substitute the answer 12 for x in the equation.
$3 \times 12 = 36$

---

1. $4x = 20$ Answer ________
2. $5x = 100$ ________
3. $3x = 9.6$ ________
4. $30 = 6x$ ________
5. $50 = 5a$ ________

6. $9x = 78$ Answer ________
7. $7x = 84$ ________
8. $16 = 2x$ ________
9. $14 = 2n$ ________
10. $2.4 = 8b$ ________

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ARITHMETIC

(Conditional Equations)

Write your answers on another piece of paper.

There will almost always be a variety of models which can be made for the solution of a given verbal problem. Thus, for the above we might also have

$187 + 213 = N$, or $N = 213 + 187$, or $N = 187 + 213$.

These are equivalent and will all guide us to the correct number of combined votes. One of the important skills which the student must develop is the rapid, accurate recognition of equivalent equations.

Equations such as $213 + 187 = N$ are called conditional equations. They become true when a certain condition or conditions are satisfied.

For each verbal problem construct a mathematical model for it in the form of a conditional equation. You need not compute the number which is determined by your equation. If you get a different result than is given in the list of answers, be sure you find out whether your equation is an equivalent one, or is incorrect.

1. Al was born in 1913. In what year was he 38 years old?
2. A coat that had been marked at $60 was bought late in the season for $45. How much was saved?
3. For lunch Hank bought a hamburger for 25 cents and a glass of milk for a dime. How much did his lunch cost?
4. The air pressure in one tire was 21 pounds per square inch. It should have been 30 pounds per square inch. How much too low was the air pressure?
5. Sales at a carnival booth were $12.20 in the afternoon, and $23.75 in the evening. If the total expenses were $7.50, what was the net income?
6. Each day Jean walks 7 blocks to school, then 5 blocks to an after-school job, and then 4 blocks home. How far does she walk in all?
7. Sam had $1.75 in his pocket. He spent 55 cents for a show. Later a friend paid back a dollar he had borrowed. What was Sam's balance then?
8. Frank wanted to save $300 during vacation. He has banked $130 during July, and $75 during the first half of August. How much has he yet to save?
9. A man drove 350, 460, and 204 miles on successive days. What was the total for the entire trip?
10. A 75 ft. roll and a 50 ft. roll of fencing were purchased. When the fence was erected, 15 ft. was not used. How many feet were actually needed?
11. A filling station operator put 2257 gallons of gasoline in an empty tank, then sold from it 843 gallons during the day. How many gallons are still needed to fill the tank which has a capacity of 4000 gallons?
12. Frank made purchases of 21 cents and 52 cents. How much change would he receive from a dollar bill?

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S6 - A - 4

ARITHMETIC

Write your answers on another piece of paper.

1. Which of the numbers shown below give the same total when added as they do when multiplied?

   1 2 3 4 5 6 7 8

2. Can you tell where or whether this will end?

   9 times 9 plus 7 equals 88
   98 times 9 plus 6 equals 888
   987 times 9 plus 5 equals 8888

3. Can you place the signs in that will make this a correct statement?

   1 2 3 4 5 6 7 8 9 equals 100

4. There is an easy way to find out whether a number can be divided by 9. Just add the figures of the number, and if the sum can be divided by 9, the number is divisible by 9. For example, the sum of the digits 47,835 is 27, which is, of course, divisible by 9. Therefore, 47,835 is divisible by 9. Why does this work? Nobody knows, but it does. . . Which of the following numbers are divisible by nine?

   162 4050 8371 1197

5. When asked how many pets he had, a boy said, "All my pets are cats but two, all of my pets are dogs but two, and all my pets are ponies but two. How many pets did he have?

6. How many times a day does a clock strike if it strikes only for the hours? (Give answers for a 12 and a 24-hour day.)

7. Two boys who had sold lemonade at a sidewalk stand counted their money at the end of the day. When they had removed the amount of change they had started with, one boy said to the other, "Here, count this. It's what we made today." The boy counted and said, "We have 80¢. It's all nickels and dimes. There are twice as many nickels as dimes." How many nickels and how many dimes did the boys have?

8. Edward bought a toy gun and then decided to buy the holster that went with the gun. The gun and holster together cost $1.50. The gun cost $1.00 more than the holster. How much did each cost?

9. Can you write 16 fours so that their sum is equal to 1000? Here is a little hint: 444 plus 444 equals 888.

10. Can you write the signs that will make this equation correct?

    7 7 7 7 equals 6

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PROBLEM SOLVING

Write your answers on another piece of paper.

1. Bobby had two coins which totaled 60 cents. One coin was not a dime. What were the two coins?

2. The teacher told her class, "I was at the post office yesterday afternoon. The post office clerk said, 'For a cent and a quarter you will get 13 postal cards.' What was the cost of each card?"

3. A man found a billfold with four bills in it. The total amount of money was $11.00. What were the four bills?

4. "Twice eight and five ducks sitting in the rain. One shot killed a seventh. How many did remain?"

5. Why would any woman rather wash a mirror than wash a window of the same size? You may assume that both are equally easy to get at.

6. What is the difference between twice 25 and twice 5 and 20?

7. "Two sons and two fathers went hunting," the teacher said. "They soon killed three rabbits. When the hunt was over, they divided the rabbits equally without cutting a rabbit into pieces. How was this possible?"

8. Two North Dakota boys were visiting. One of the boys said, "Our farm is exactly a mile square." "That's interesting," commented the other boy, "ours contains a square mile." What is the difference in the size of the two boys' farms?

9. The teacher tells this story. . . Mr. Jones drove from Fresno to Mendota, which is a distance of 60 miles, in 80 minutes. On the return trip, he drove at the same speed, but it took him 1 hour and 20 minutes. Can you explain this?

10. How much is 3 times 2 times 4 times 5 times 0 times 7?

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8-1-63

ARITHMETIC

(Money)

Write your answers on another piece of paper.

1. Where are the largest coins in the world used?

2. How often may the design on U.S. coins be changed?

3. How long does the average dollar bill last before it wears out?

4. Why is a two-dollar bill considered unlucky?

5. Is it against the law to pay a debt in pennies?

6. What do Eskimos on the islands off Alaska use for money?

7. How much nickel does a nickel contain?

8. Why were owls often shown on coins in ancient times?

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S6 - A - 7

ARITHMETIC

Write your answers on another piece of paper.

Find the right signs for each example:

Example. 2 x 4 = 4 + 4   2 x 4 = 8   4 + 4 = 8

(1) 4------5 = 18------9

(2) 6------6 = 2-----18

(3) 9------9 = 8------7

(4) 8------8 = 4-----16

(5) 10------5 = 5------3

(6) 20------8 = 24------2

(7) 20------5 = 10------5

(8) 96------6 = 1-----16

(9) 5------5 = 12------2

(10) 18------2 = 3------3

1. Joe's father said that 2520 can be divided by each number from 2 to 9 without a remainder. Was Joe's father right?

2. What is the smallest number that can be made with each of the figures 1, 2, 3, 4. What is the largest?

3. My name begins with 500. It also ends with 500. The letters between are the first letter of the alphabet and numerals. What is my name?

4. Take the number 142857 and multiply it by 2. You should get 285717. Notice that this has the same figures in it, arranged in slightly different order. That is, the 14 is at the right side. Now multiply 142857 by 3,4,5 and 6 and see if you get the same figures.

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S6 - A - 8

ARITHMETIC

Copy the numbers and put decimal points where you think they belong.

Write your answers on another piece of paper.

1. Harry grew 25 in. last year.

2. Mr. Adams weighs 18.9 lbs.

3. Mr. Anderson's automobile averages 175 miles on a gallon of gasoline.

4. Mary's bedroom is 1.4 ft. by 125 ft.

5. A very fast ocean vessel can travel 285 to 330 miles an hour.

Read these famous dates. Find what each date is famous for.

6. MCCXV

7. MCDXCII

8. MDCVII

9. MDCCLXXVI

10. MDCCLXXXIX

11. MDCCCLXV

Find the plan that was used to get each row of numbers below.
Then write the missing numbers.

Row A	5	9	13	17	__	__	__	__
Row B	7	13	19	25	__	__	__	__
Row C	25	22	19	16	__	__	__	__
Row D	9	15	21	27	__	__	__	__
Row E	47	41	35	29	__	__	__	__

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ARITHMETIC

Write your answers on another piece of paper.

1. Write an addition example whose sum is 10, using five threes.

2. Write an example whose sum is 26, using only fives.

3. Write a fraction that you can invert and get an answer 9 times as large as the fraction.

ROMAN NUMERALS

I = 1
V = 5
X = 10
L = 50
C = 100
D = 500
M = 1,000

Multiply	Divide
1. VII x VII =	5. XXVIII ÷ IV =
2. XX x V =	6. XXV ÷ V =
3. C x C =	7. M ÷ C =
4. IX x V =	8. X ÷ II =

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S6 - A - 10

Write your answers on another
piece of paper.

TREASURE CLUE MYSTERY DATE

(Answer Sheet)

Start at the arrow. Find the answer to the first box. Transfer this answer to the box to the left because the answer is in the tens. Transfer each box's answer from then on in the following manner:

ones - to the right ⟶ hundreds - down ↓

tens - to the left ⟵ thousands - up ↑

Work until you get to the last box. The first and last box will give you a clue to the mystery date. Put it here ______________.

Start here ↙

x 8	- 38	+ 29	x 2	3)	+ 38	- 29	- 7743	17 x 9	8 + 9
+ 548	- 7711	x 48	☒	99)	- 1096	x 3	x 869	+ 246	☒
5)	+ 1897	+ 479	☒	+ 1705	- 864	☒	x 6	- 347	☒
- 179	x 647	- 381	☒	+ 1819	3)	☒	- 187	- 996	x 228
x 4	+ 89	53)	☒	x 4	- 3057	☒	25)	+ 995	- 688
- 174	- 991	x 84	- 1106	x 1000	x 3	☒	x 6	x 3	7)
+ 389	- 225	- 747	x 123	- 5991	+ 2973	☒	- 567	x 87	☒
- 350	x 49	- 7784	☒	+ 499	x 12	+ 39	- 2189	- 99	☒
29)	+ 99	+ 4038	☒	+ 1838	+ 111	☒	+ 1094	6)	☒
☒	12)	x 419	☒	x 37	9)	☒	x 59	6)	☒

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7-29-63

Write your answers on another piece of paper.

S6 - A - 11

FRACTIONS

A 3/4 6/8 10/12	B 2/3 5/6 3/4	C 4/9 5/8 3/4	D 9/4 4/9 4/8	E 1/2 2/2 3/2
F	G X 2 1/3	H + 1/12	I ÷ 1 2/3	J x 4/5
K	L − 5 2/3	M	N	O + 41/50
P	Q	R + 32 4/5	S	T
U + 13/41	V	W	X	Y + 69 3/10

A. Circle the reduced fraction.

B. Circle the smallest fraction.

C. Circle the largest fraction.

D. Circle the improper fraction.

E. Circle the proper fraction.

F. Add the answers for A, C, D, and E and put the sum in F.

K. Add the highest answer from the problems in line 1 at the top of page 346.

M. Divide by the lowest answer of the problems in line 1 at the top of page 349.

N. Multiply by the answer to the last problem on page 349.

P. Multiply by the smallest answer from line eight on page 359.

Q. Multiply by the largest answer on the bottom line of page 361.

S. Multiply by the highest answer on line 4 at the top of page 364.

T. Divide by the answer to problem 6d, page 347.

V. Multiply by the highest answer on line 3, top of page 356.

W. Multiply by the answer to problem 4b, page 349.

X. Add the answer to 6g, page 347.

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Write your answers on another piece of paper.

DECIMALS

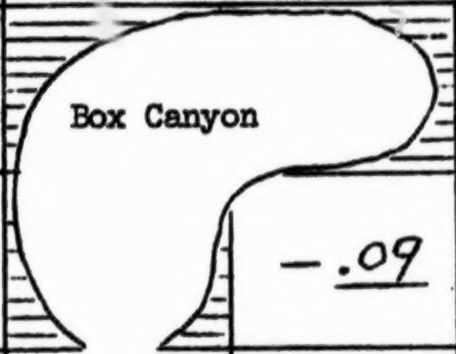
Follow these directions:

The object of this game is to find your way into the box canyon. First figure the answer to the starting box. If the answer is in tenths, move that answer down into the next box; if the answer is in hundreths, move that answer up into the next box; if the answer is an odd whole number, move it into the box to the right. An even number is to be moved to the left.

If necessary carry any answer to three decimals (thousandths) and round off to hundreths. Transfer each box's answer to the appropriate box. You will not have to use all of the boxes to get into the box canyon. Drop all unneeded zeros.

TENTHS ↓ HUNDRETHS ↑ ODD NUMBERS → EVEN NUMBERS ←

Start here

1.6 +1.4	−.9	×.09	−.04	−.9	.04)	5)
+.09	+8.7	.09)	5)	×7	+1.25	×8
−.09	−1.8 →	×.1	×7	×10	−3.81	16)
99)	×.09	+.2	−2.43			+7.8
+5.63	×.1	+17.9	6)		−.09	−7.4
×.5	+7.9	×5	×.2	×.18	+.09	×.6
+8.99	.09)	×.85	×84	5)	+13.52	+21.7
8)	+.56	+13.4	×.8	×.09	×18	×.5
−.09	×.14	−1100	.2)	+.09	×.18	−12.3

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S6 - M - 1

THE GREAT COMPOSERS

Can you match the composer with his biography? Write your answers on another piece of paper.

1

A famous Russian composer, I was born in 1840. My works include Nutcracker Suite, Swan Lake, Romeo and Juliet, and Sleeping Beauty.

2

Born in 1861, I am the first American composer to achieve an international reputation. To a Wild Rose and The Tailor and the Bear are two of my compositions.

3

I was born in Germany in 1756. At the age of six, I played the piano and composed Minuet in F. Some say my music has the touch of magic. My operas include The Magic Flute and Don Giovanni.

4

My wife, Clara, became the most famous performer of my piano music. In addition to writing songs, symphonies, and piano pieces, I was an excellent pianist.

5

Born in 1770, I lived most of my life in Vienna, was a student of Haydn, and wrote nine symphonies, including the Heroic, the Pastoral, and The Choral Symphony.

ROBERT SCHUMANN

GEORGE FREDERIC HANDEL

PETER TCHAIKOVSKY

LUDWIG VAN BEETHOVEN

EDWARD MacDOWELL

JOHANNES BRAHMS

WOLFGANG MOZART

JOSEPH HAYDN

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S6 - L - 1

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LANGUAGE

Choose the correct word for the blank spaces. Watch the spelling carefully. Write your answers on another piece of paper.

Dear Uncle John,

We just arrived home from a trip out west. We saw all kinds of ________ and the ________ was good most of the time. We drove ________ the ________ and in the ________.

At the Grand ________ I rode a ________. We had a ________ who took us down a ________ ________.

We brought home a lot of ___________ things. I like my ________ _________ the best.

Your __________

Jack

1. senery, scenry, scenery
2. whether, weather, wether
3. through, threw, thorough
4. dessert, dezert, desert
5. mountians, mountans, mountains
6. canyon, cannon, kanion
7. burrow, burro, buro
8. gide, giude, guide
9. stepe, steap, steep
10. trial, trail, trale
11. intresting, interesting, intristing
12. Indain, Indian, Indyan
13. moccassins, mocassins, moccasins
14. nefew, nephiew, nephew

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In6-S-C-En-64

WORD ORIGIN

Write your answers on another piece of paper.

Where do we get these words?

1. Hippopotamus

2. Clock

3. Hamburger

4. News

5. Sundae

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S6 - L - 3

PROFESSOR EGGHEAD'S PROVERBS

Professor J. Egghead likes to use big words and complicated sentences. Here is how the professor would say five well-known proverbs. See how many you can recognize.

Write your answers on another piece of paper.

1. A rotating fragment of mineral collects no bryophytic plants.

2. Exercise your visual faculties prior to executing a jump.

3. Under no circumstances compute the number of your barnyard fowls previous to their incubations.

4. An excess of individuals skilled in the preparation of edibles impairs the quality of thin soup.

5. A feathered biped in the terminal part of the arm equals in value a pair of feathered bipeds in densely branched shrubbery.

6. A recently purchased implement for brushing away floor dirt invariably effaces the dirt most efficiently.

7. Everything is legitimate in matters pertaining to ardent affection and armed conflict between nations.

8. A timorous heart at no time succeeds in acquiring the beautiful damsel.

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Is your vocabulary increasing by leaps and bounds? Check yourself on these "Yes or No" questions to see.

Write your answers first, then look in the dictionary to see if you are right.

Write your answers on another piece of paper.

1. If an alligator is an animal, is an alligator pear fruit for an alligator?
2. If a ghost is the spirit of one who is dead appearing to the living, is aghast a ghost appearing to the dead?
3. If you had a roommate, could you ruminate?
4. If mother wanted you to cut apples into cubes for a salad, would she say, "Cubit, please."?
5. Is a gunwale related to a whale?
6. Since we eat popsicles from a stick, would we do the same with succor?
7. If you asked grandmother where grampus is, would she probably say, "In the water."?
8. If daisies are many flowers, is a dais one flower?
9. Would you like to be an elocutionist?
10. Would you put treacle in muffins?
11. Could we say that Lucy speaks with lucidity?
12. Could a historical story become a hysterical story?
13. Does a jockey play in a hockey game?
14. Is there a dearth of earth on the moon?

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S6 - L - 5

VIVE LA FRANCE!

Parlez-vous francais? Some people like to show off by using foreign words in talking and writing. You won't win any popularity contests that way, but you should be familiar with the meaning of some common foreign expressions. Try your knowledge of French on the words below. Each came from the French without change in spelling or meaning. In the blank in front of each item in Column A, write the letter of the phrase in Column B that matches it.

Write your answers on another piece of paper.

Column A	Column B
___1. savoir faire	a. on the way
___2. bon voyage	b. blunder
___3. faux pas	c. pen name
___4. en route	d. tact
___5. nom de plume	e. pleasant journey

Rhyme Time: The French are sticklers for good pronunciation. Few Americans ever pronounce French words well enough to be mistaken for Frenchmen. Some sounds in the French language are not in English at all. It's hard for someone who did not learn to speak French as a small child to say French words with a true French flavor. Each of the following words comes from France. In English, their spelling, meaning, and pronunciation have changed only slightly. Look up each word in your dictionary. Then, show that you can pronounce the word by drawing a ring around the word to the right of it that rhymes with it.

1.	ballet	mallet	display
2.	cliché	obey	quick
3.	garage	barrage	manage
4.	mauve	drove	love
5.	piety	kitty	anxiety

French Cuisine: The French are world famous for their fine cooking (cuisine). Every word on the menu below is either French or of French origin. Look at the menu; would you know what to order? A good dictionary will help you. Consult it to answer each of the questions that follow:

Á LA CARTE MENU

APPETIZER
Juice . Melon
Soup du Jour . Hors d'oeuvres

ENTRÉE
Filet Mignon Sautéed Oysters
Veal Cutlet au Gratin . Onion Omelet

VEGETABLES
Carrots . Spinach . Cabbage
Rice . Cauliflower

SALADS
Lettuce & Cucumber
Radishes & Scallions

DESSERTS
Éclair . Pie á la Mode
Cantaloupe . Grapes . Gelatin

1. Another term for Menu is ____________.
2. The expression á la carte means ____________________.
3. Hors d'oeuvres are relishes usually served ____________.
4. The words du jour mean ____________.
5. The main course in a meal is the ____________________.
6. Filet mignon is a cut of ____________.
7. A dish that is sautéed is ____________.
8. A veal cutlet au gratin would probably be covered with ____________.
9. An eclair is a ____________.
10. Á la mode means ____________.

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REFERENCE QUIZ

Write your answers on another piece of paper.

In which of the following references would you look to find the answers to the questions below.

a. Rand-McNally Atlas

b. Information Please or World Almanac

c. Children's Catalog

d. U. S. Government Organization Manual

1. Where are the Big Rock Candy Mountains?

2. What is the batting average of Mickey Mantle?

3. When is Guy Fawkes Day?

4. Deborah Doublefoot wrote a book for children about children who turned into monkeys after school. What is the title?

5. On what day does Easter fall in 1965?

6. What is a good story for your small brother or sister about flying to the moon?

7. What is the phone number of the Federal Bureau of Investigation in Washington, D. C.?

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In6-S-C-En-66

S6 - R - 2

CHOOSE THE TWOS

In the following MESSAY (or Messy-essay), select every word, sign, symbol, number or phrase that in any way indicates or represents the idea of TWO. However, at the same time take care not to select anything that does not come under these headings, or does not relate to or convey the idea of TWO.

Write your answers on another piece of paper.

THE MESSAY

Mark Twain took but two seconds to recheck his observation of the binary stars in the constellation Gemini. His second result agreed with that obtained by the binomial theorem in his parents' duplex apartment. "A pair of deuces," he repeated as the twins came in together. "Too late!" said the couple, starting to sing a duet. Only a fortnight ago they had planted biennials where the byway met the by-pass (a Siamese connection in the aqueduct). Since this once again seemed like double-crossing, Mark Twain duplicated his order for a brace of partridges and drove off between them, in a tandem drawn by a yoke of oxen with dual personalities.

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SCRAMBLED HEADLINES

Here are some headlines, each composed of five words, not making much sense as now written.

Combine some of the words in each sentence with words from the other two, rearrange them to make three sensible five-word headings. Every word must be used, and no changes in spelling are allowed. Write your three headlines on another piece of paper.

1. MASKED DOGS FIRE IN UNION
2. MEN DIE AT VALUABLE FIRE
3. BANDIT FIRES ALL BOSS COPS

Do the same with the following scrambled headlines. Make two sensible headlines, one with five words and the other with six.

1. RECORD MARKETS BEAT SALES HOME
2. TEAMS FORCED UNDER DECLINE TO HOPE

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S6 - R - 4

ALPHABET SOUP

In each of the jumbled alphabets printed below, there is a concealed word of at least eleven letters. Each word is spelled with its letters all in correct order reading from left to right.

Find the correct letters as in the following example:
Write your words on another piece of paper.

M V N Q U A S L G H E P D I X C K T B O W R Z Y J F

11-letter word - VALEDICTORY

Begin with the letters underlined

C F G S Q U M B O W R D H I N X A Z T E K L V P Y J

1. 13-letter word ______________________________

S L W Z T M E N V D O X G R Y F A J P H B Q U I C K

2. 12-letter word ______________________________

F M Q U R J E C K D O G H N I Z X A B V L W Y S T P

3. 12-letter word ______________________________

P F B L E A T Y G R J O V Z Q U M I N C K D S H X W

4. 11-letter word ______________________________

B W O Q U G L Y R K M Z V A J N S H F E X I C T P D

5. 11-letter word ______________________________

D L S O J Y N V M P F A B T H X I C K Z Q U E G R W

6. 11-letter word ______________________________

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HYPERPOLYSYLLABICSESQUIPEDALIANISM

S6 - R - 5

Having trouble gulping down the title of this page? What a serving (34 "lettersful") of alphabet soup it makes! But don't let a big word like hyperpolysyllabicsesquipedalianism upset you. Try swallowing it a spoonful at a time.

1.	hyper-	more than	4.	sesqui-	one and a half
2.	poly-	many	5.	pedalian-	foot
3.	syllabic	syllables	6.	ism	the act of (using)

Sip by sip, then, the 34 letters mean "the act of using a great many syllables to form words that are a foot and a half long"; or, to put it briefly, "the overuse of long words." Here are three other sesquipedalians: floccinaucinihilipilification (29 letters meaning "the habit of estimating as worthless"), honorificabilitudinitatibus (27 letters meaning "honorableness") and pneumonoultramicroscopicsilicovolcanokoniosis (45 letters that make up the name of a disease of the lungs). Back in 1939, this last word was reported to be the longest word in the English language. Can you top it?

Not all long words are difficult; on the line to the left of the words in Column A write the letter of the expression in Column B that best defines it.

COLUMN A		COLUMN B
____ 1. procrastinate	a.	not to be recalled or withdrawn
____ 2. controversial	b.	the act of working together on something
____ 3. unanimously	c.	with the author's name unknown
____ 4. irrevocable	d.	having to do with arguments
____ 5. pedestrian	e.	existing or happening at the same time
____ 6. anonymous	f.	with everyone in complete agreement
____ 7. collaboration	g.	a person who goes on foot
____ 8. totalitarianism	h.	to put things off until later
____ 9. simultaneously	i.	tireless, untiring
____10. indefatigable	j.	tyrannical rule by one political group

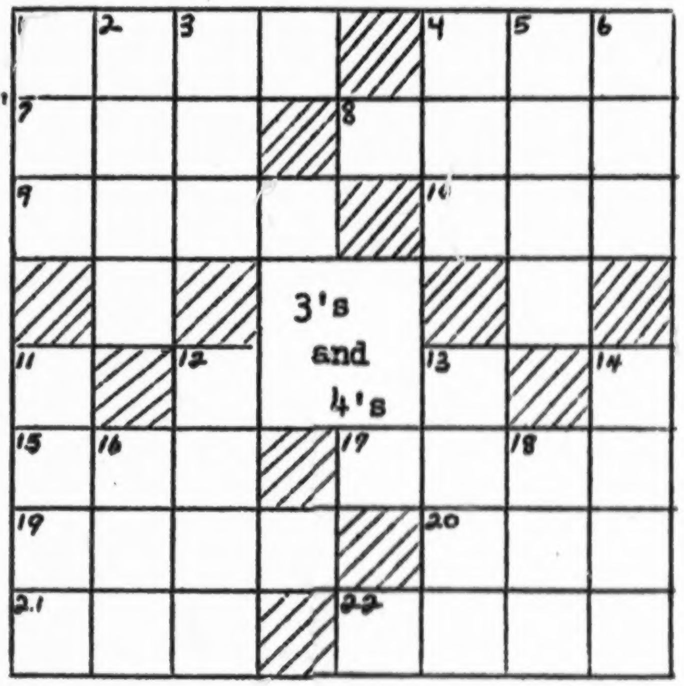
Not all short words are easy words, for some can really baffle you. See how well you can do this puzzle using three or four-letter words.

ACROSS

1. help
4. declare
7. pale
8. mimic
9. small whirlpool
10. encountered
15. cover
17. __________mater
19. dry
20. fall behind
21. used in tennis, fishing
22. wood for burning the dead

DOWN

1. fear and wonder
2. past tense of "bid"
3. finish
4. energy, vigor
5. sign of the future
6. rainy
11. close group
12. prepare for publication
13. wartime partner
14. wise man
16. anger
18. injure, damage



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S6 - R - 6

FINDING MATERIALS IN MORE THAN ONE CLASS

Use the Dewey Decimal System of Classification List in The Children's Book on How to Use Books and Libraries, pages 34-37.

Fill in the blanks below, showing in which classes you may find books about each subject.

Circle the Best Class of books in which to find material.

Write your answers on another piece of paper.

Subject — **Classes**

1. Hawaiian Islands--Geography and Travel — 910 917 917.3 [✓ 919]

2. California--Missions — _____ _____ _____ _____ _____

3. Christopher Columbus — _____ _____ _____ _____ _____
_____ _____ _____ _____ _____

4. Cotton of Egypt — _____ _____ _____

5. Colonel Charles A. Lindbergh — _____ _____ _____ _____

6. George Washington — _____ _____ _____ _____ _____
_____ _____

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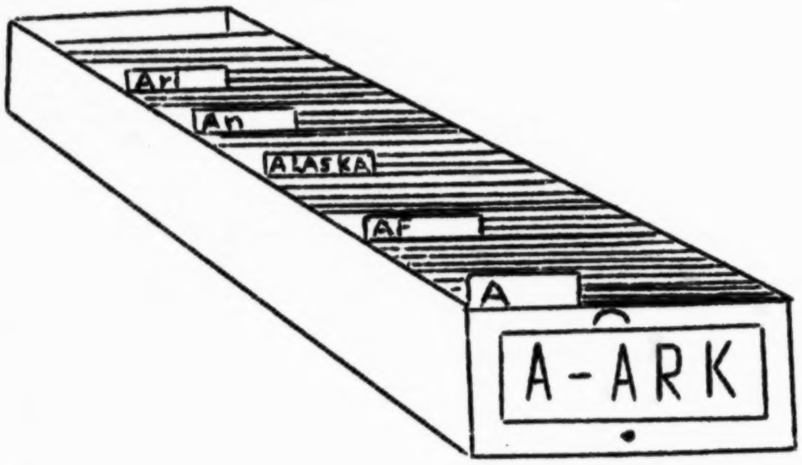
S6 - R - 7

USING "INSIDE GUIDES" OF THE CATALOG

Reference: Children's Book on How to Use Books and Libraries

By using the illustration below, write between which guide cards the following author, subject and title cards may be found. Write your answers on another piece of paper.



1. Between An - Ari Animals--Stories (Subject)

2. Between ____________ Hans Andersen (Author)

3. Between ____________ Arabs (Subject)

4. Between ____________ Africa (Subject)

5. Between ____________ Alfalfa (Subject)

6. Between ____________ Aesop's Fables (Title)

7. Between ____________ The Alamo (Subject)

8. Between ____________ Ants (Subject)

9. Between ____________ Airplanes (Subject)

10. Between ____________ Louisa May Alcott (Author)

11. Between ____________ Amazon River (Subject)

12. Between ____________ Arctic Ocean (Subject)

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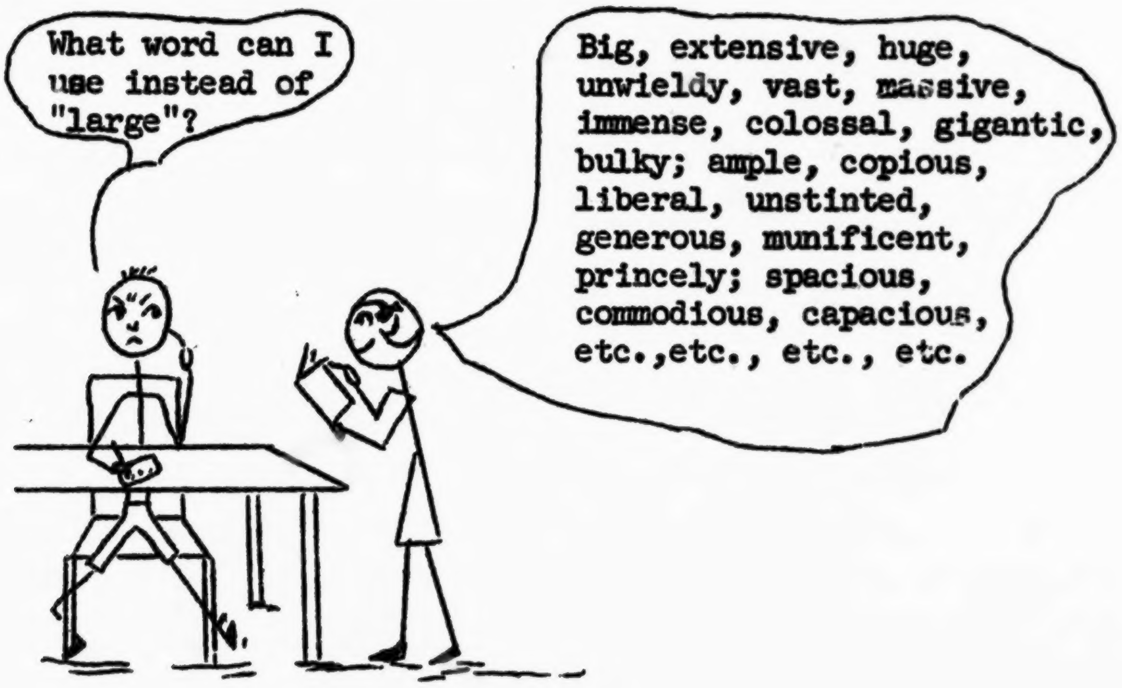
S6 - R - 8

USING THE DICTIONARY TO FIND SYNONYMS

Reference: The Children's Book on How to Use Books and Libraries, pages 146 - 147

Use the chart of dictionary differences to see in which dictionaries synonyms may be found.

Find **one** synonym for each of the words underlined. Be sure you know the meaning of the synonym you write. Write your answers on another piece of paper.


What word can I use instead of "large"?
Big, extensive, huge, unwieldy, vast, massive, immense, colossal, gigantic, bulky; ample, copious, liberal, unstinted, generous, munificent, princely; spacious, commodious, capacious, etc.,etc., etc., etc.

1. When he was in the woods, John saw a great bear. large
2. The Greedy Goat is the title of a story.
3. She had a fear of falling off the horse.
4. The man was very feeble.
5. He is very successful in his work.
6. He is a sullen person.
7. It is cant to call a man a "guy."
8. He showed great loyalty to his party.
9. She is a garrulous person.
10. Do you see that brilliant star?
11. She is always prompt in doing her lessons.
12. She sent a cordial letter.

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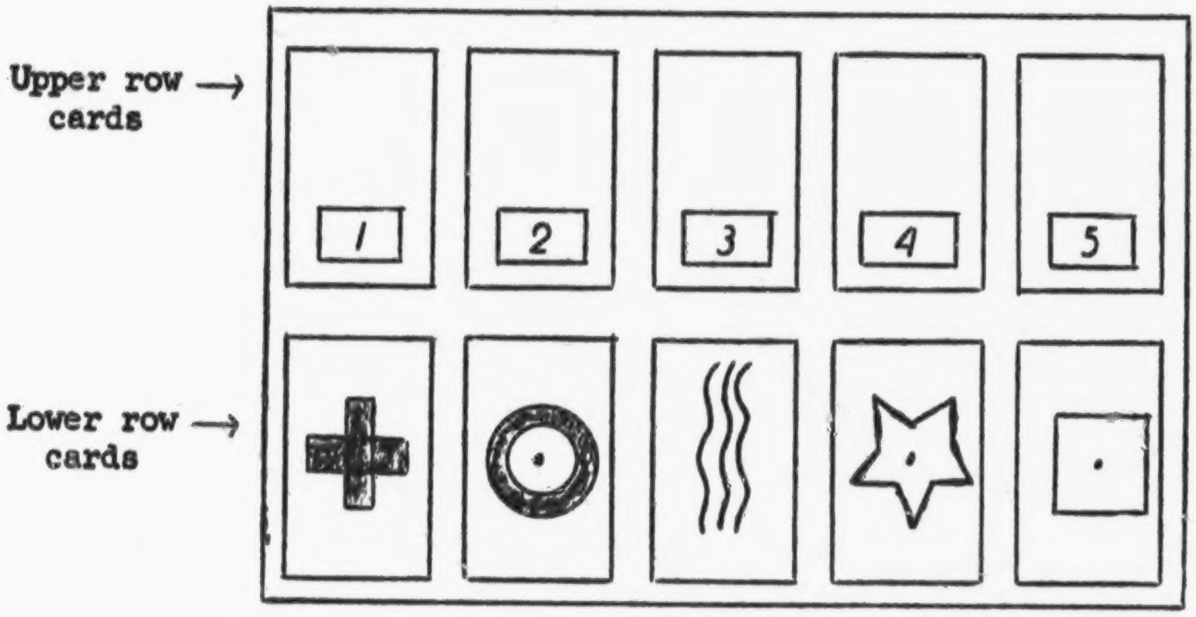
S6 - R - 9

EXTRA SENSORY PERCEPTION



The upper row of cards is in an entirely different order from the lower row. Follow the directions given in A, B, C & D to place the cards in proper order.

A. The __PLUS__ isn't next to the __WAVE__; neither is the __CIRCLE__.

B. The __CIRCLE__ isn't next to the __STAR__; neither is the __PLUS__.

C. The __WAVE__ isn't next to the __SQUARE__; neither is the __CIRCLE__.

D. The __STAR__ is just to the right of the __SQUARE__.

__Write your answers on another piece of paper.__

No. 1	No. 2	No. 3	No. 4	No. 5
Circle				

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WHAT IS THE BEST WORD TO USE?

Reference: The Children's Book on How to Use Books and Libraries, pages 134-135

Write your answers on another piece of paper.

One little word may have many meanings. For example, look at the word hold. Look through the meanings and find the one which best fits the sentence.

1. This pail will hold two quarts of water.

2. The man shouted, "Hold!"

3. The hold of the whites saved them from the warlike Indians.

4. "Hold the dog while I go into the house," said Mary.

5. "Where shall we hold the library meeting?"

6. Will he hold out until the end of the game?

7. The theatre manager said he would hold over the show another week.

8. "It's a hold up!" shouted the boys.

9. The girl's mother said, "One must learn to hold one's peace."

10. The speaker will hold forth for an hour.

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S6 - S - 1

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SCIENCE

Reference: World Book

Write your answers on another piece of paper.

1. What is the name for the scientific study of language?

2. Who was "the Father of Medical Science"?

3. About how many kinds of minerals have scientists collected?

4. How many constellations do modern astronomers recognize?

5. What is an asteroid? What is the diameter of the largest one?

6. Why has only one side of the moon ever been seen by man?

7. About how much does the earth weigh according to estimates?

8. What ancient lighthouse was called one of the "seven wonders of the world"?

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In6-S-C-En-67

SCIENCE

(Fish)

Write your answers on another piece of paper.

1. How many species of fish are there in the world?

2. What is a sea serpent?

3. How big was the largest shark ever caught?

4. Does a shark grow a new tooth when it loses one?

5. What is the smallest fish eaten as food by people?

6. Does a fish feel pain when hooked?

7. What fish shoots its victims before eating them?

8. Which starfish has the greatest number of arms?

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S6 - S - 3

SCIENCE
(Snakes)

Write your answers on another piece of paper.

1. Is the boa constrictor poisonous?

2. Are there such things as flying snakes?

3. Can the direct heat of the sun kill a rattlesnake?

4. Do some snakes have legs?

5. What is the largest snake in the world?

6. How do snakes hear?

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86 - S - 4

SCIENCE
(Space)

Write your answers on another piece of paper.

1. How close to the earth is the nearest star?

2. About how many meteors strike the earth's atmosphere every day?

3. Can a star be photographed?

4. When was the moon first contacted by man?

5. Why is the planet Venus so bright?

6. Are there such things as falling stars and shooting stars?

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SCIENCE

(Whales)

Write your answers on another piece of paper.

1. Is a whale a fish? Explain.

2. How much weight does a baby whale gain daily?

3. Do whales spout water? Explain.

4. What is whalebone?

(Trees)

1. What tree is cut during moonlight?

2. What tree is the oldest in the world?

3. What tree grows fastest?

4. What tree grows tallest?

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SCIENCE

Reference: How and Why Series--Books 5 and 6
Wonderworld of Science--Books 5 and 6

Write your answers on another piece of paper.

1. Explain why we have different names for typhoons and hurricanes when they are both violent winds.

2. Explain how water helps to change the earth's surface.

3. Explain how the sun changes the earth's surface.

4. Explain how wind helps to change the earth's surface.

5. Explain how the air helps to change the earth's surface.

6. Explain why tornadoes are more dangerous than cyclones.

7. Explain why a barometer "falls."

8. How could you prove that warm air holds more moisture than cold air?

9. Name the climate zones.

10. Explain why weather forecasts are important to you, to your mother, to your father.

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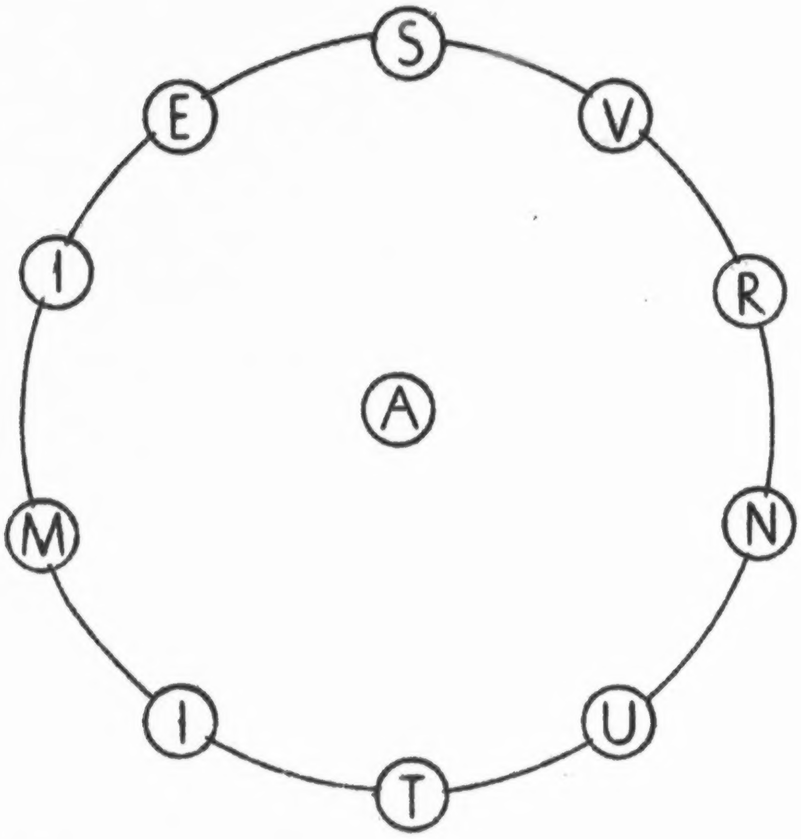
S6 - S - 7

Write your answers on another piece of paper.

SKY PUZZLE



First draw a circle on your paper and put the letters in the correct places. Then draw five straight lines connecting certain of the above letters, so as to make a picture of one of the familiar objects in the sky and also to spell out its six-letter name.

For example, you might draw:

Two straight lines connecting three letters:	S-U-N
Three straight lines connecting four letters:	M-A-R-S
Four straight lines connecting five letters:	V-E-N-U-S

But not one of these would make a good picture of the object whose name you were spelling.

Your five straight lines must form a perfect picture of the object whose name you are spelling out in the six letters.

To get you started connect the S with the lower I. Good Luck!

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SCIENCE

Write your answers on another piece of paper.

1. How long does it take a polliwog to turn into a frog?

2. What two unusual fish carry their own electric batteries?

3. How many gallons of water can a camel drink at one time? Explain how and why.

4. How fast can a wild duck fly?

5. How are the teeth of a rodent different from the teeth of other animals?

6. What is a doodlebug? Why does it dig holes in the sand?

7. Do both male and female mosquitoes bite? Explain.

8. What is the bottle tree? Where does it grow? How did it get its name?

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S6 - SS - 1

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THE GREAT PYRAMID OF EGYPT

Write your answers on another piece of paper.

1. How many stones were used in the great pyramid of Egypt?

2. How much do the stones weigh?

3. How much space does the pyramid cover?

4. How long did it take to build?

5. How many men worked on the great pyramid of Egypt?

6. How high is the great pyramid?

7. Who built the great pyramid of Egypt?

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In6-S-C-En-68

S6 - SS - 2

HISTORY

(A Capital Quiz)

Write your answers on another piece of paper.

1. Why was the White House painted white?

2. How much time must a Congressman spend in the House or Senate during a session at Congress?

3. How large are the grounds surrounding the White House?

4. Can a woman become president?

5. How long did it take to build the Capitol?

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S6 - SS - 3

GEOGRAPHY

Write your answers on another piece of paper.

1. Which city in the world would take you longest to cross?

2. Why does Venice have so many canals?

3. Which continent is the largest: Europe or South America?

4. What is the largest state east of the Mississippi?

5. Is there a desert in New England?

6. Which town has the highest altitude in the world?

7. Is there any city in the world situated on two continents? Explain.

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S6 - SS - 4

HISTORY

Write your answers on another piece of paper.

1. Which king of England could not speak English?

2. Who was the greatest glutton in history?

3. Which American president was oldest when his term ended?

4. Did Magellan sail around the world? Explain.

5. What was Christopher Columbus' real name?

6. Which heavyweight champion first faught with boxing gloves?

7. Which American president invented a folding chair?

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S6 - SS - 5

Reference: World Book
TRANSPORTATION AND COMMUNICATION

Write your answers on another piece of paper.

1. What were the earliest animals used for transportation?

2. Why were some roads called turnpikes?

3. What is stored in the camel's hump?

4. How did the jeep get its name?

5. What is the British term for trucks?

6. How did the blimp get its name?

7. What ancient road was called the "Queen of Roads"?

8. What famous highway is sometimes called the "Main Street of the U.S."?

9. What do the letters "lc" mean to a printer?

10. What are the three dialects used in American speech?

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S6 - SS - 6

SOCIAL STUDIES

Reference: World Book

Write your answers on another piece of paper.

1. How is Niagara Falls changing from year to year?

2. What is the longest river in the Eastern Hemisphere? In the Western Hemisphere?

3. Why do some primitive peoples wear masks during the tribal ceremonies?

4. Who was the "Napoleon of South America"?

5. What are the two largest islands in the world?

6. What is the largest fresh-water lake in the world?

7. Where is the oldest church in the Americas?

8. What material is used to cut diamonds?

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